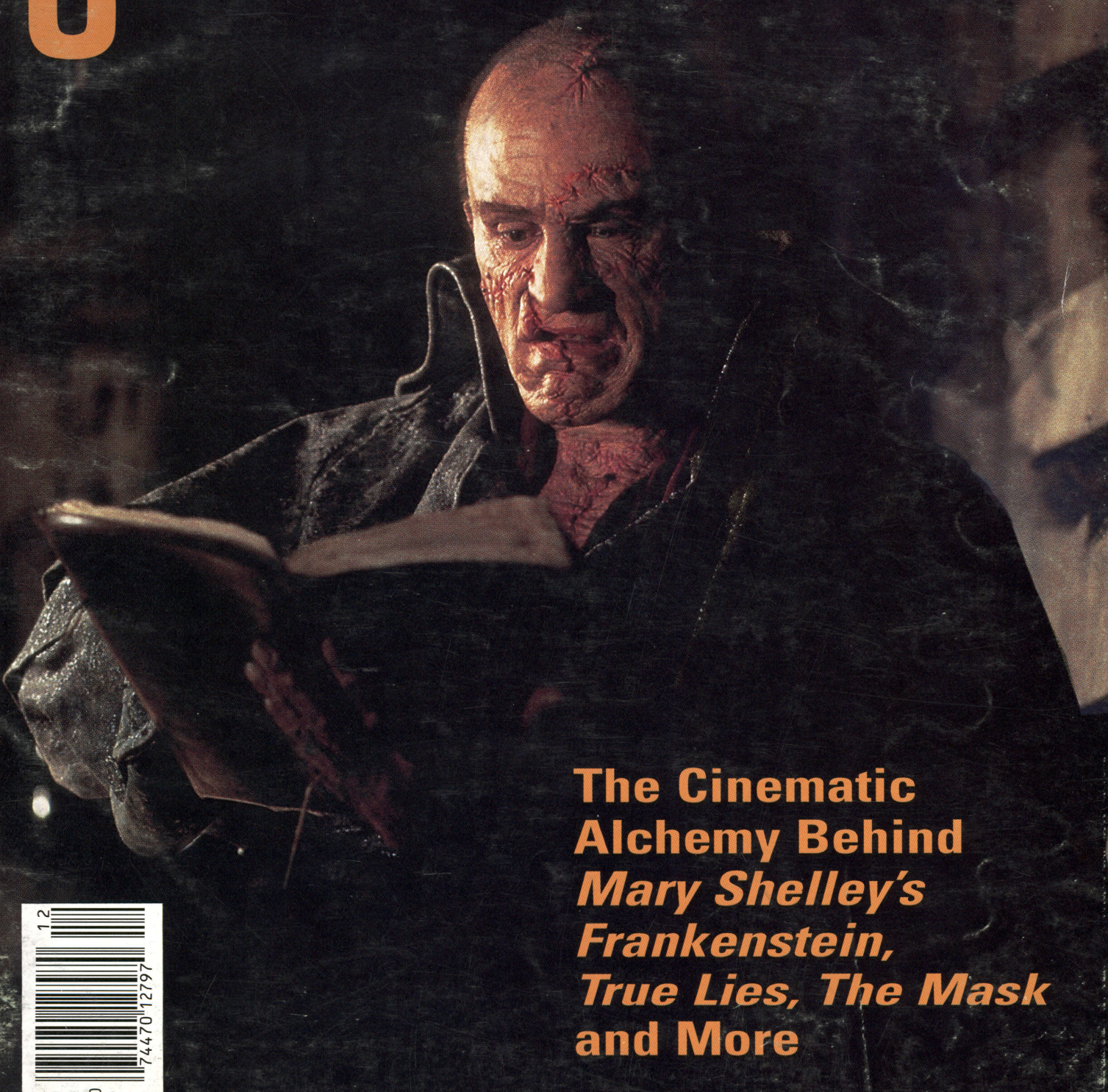


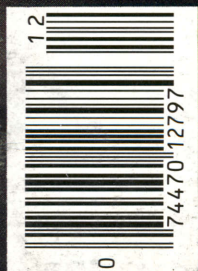
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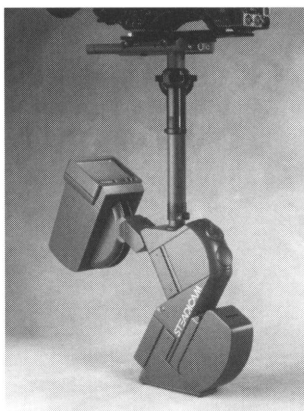
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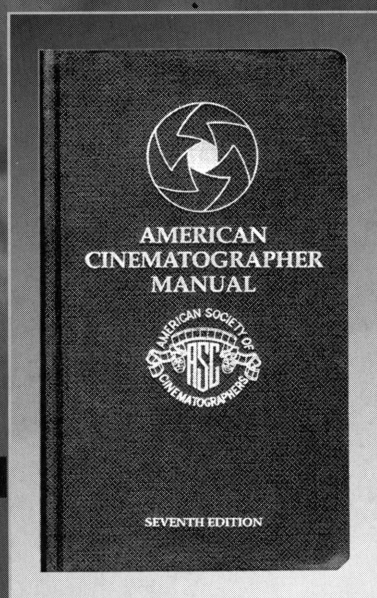
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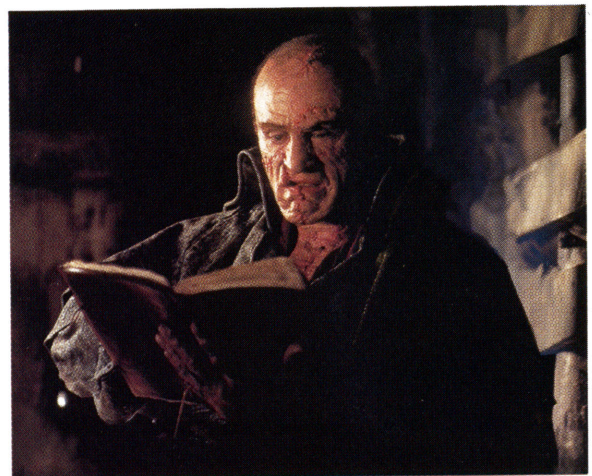
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**On Our Cover:** Taking advantage of some remarkable makeup work, Robert De Niro brings his own stamp to the role of the Creature in *Mary Shelley's Frankenstein*, directed by Kenneth Branagh and shot by Roger Pratt, BSC (photo by David Appleby).

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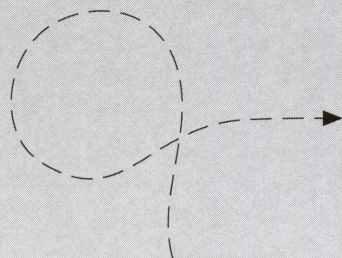
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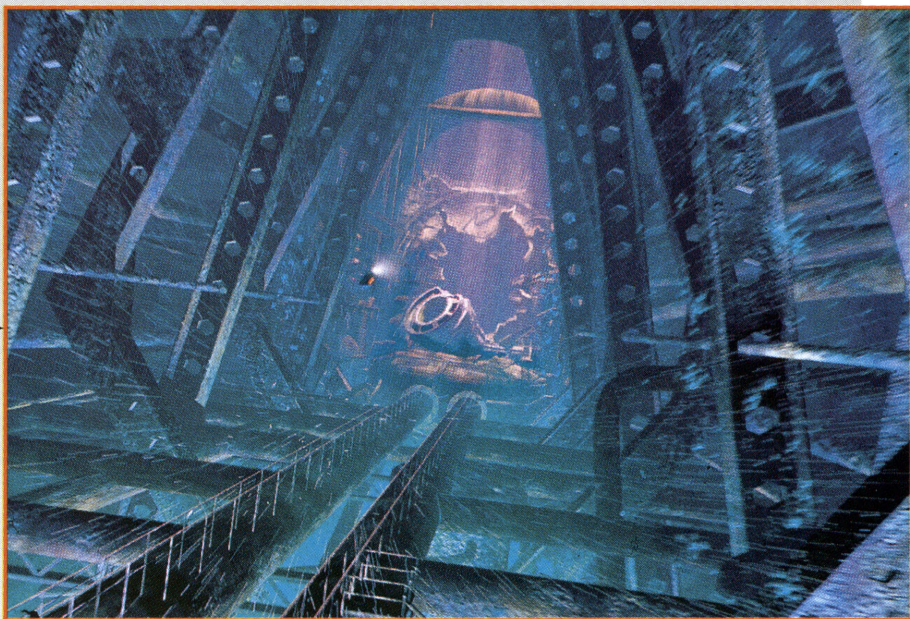
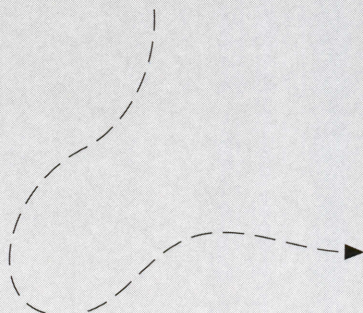
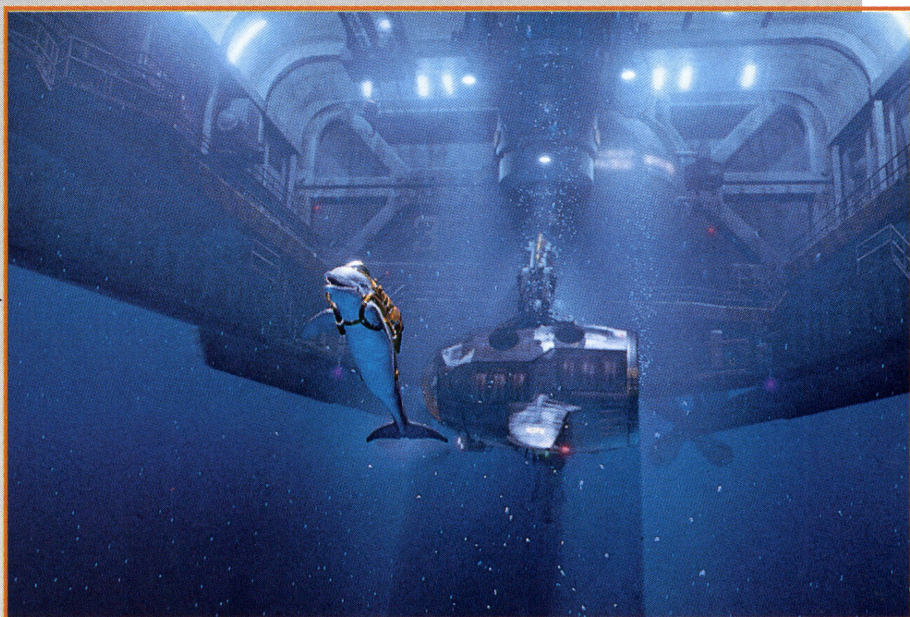
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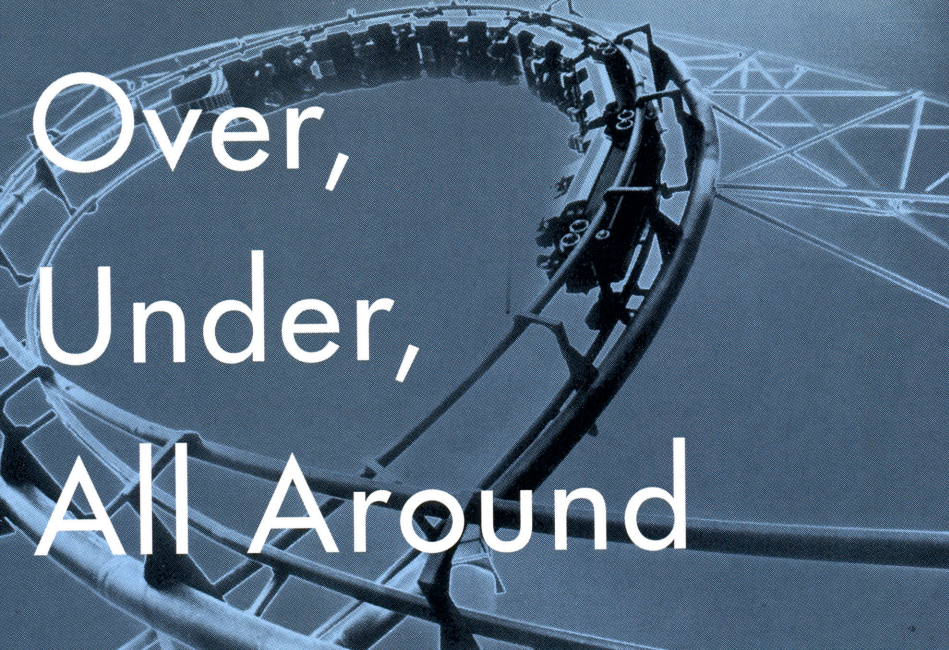
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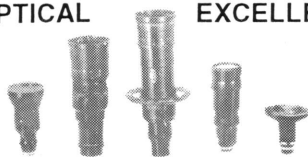
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## Letters

### Cartoons are Digital Composites, Too

It's fascinating to see the growing integration of conventional cinematic techniques with digital technologies, and I read your October feature ("ILM Breaks New Digital Ground for *Gump*") with interest.

Your article notes that the three-minute *Forrest Gump* opening is the "longest digital film composite in history." To give proper credit to all forms of film, note that Walt Disney Pictures' last four animated feature films — *Rescuers Down Under*, *Beauty and the Beast*, *Aladdin*, and *The Lion King* — are entirely digitally composited. Each of these projects is over 75 minutes in length; in many cases, single sequences involve hundreds of levels of digital compositing.

In 1992, the Academy of Motion Picture Arts & Sciences acknowledged Disney's digital compositing and production process with an Academy Award for Scientific and Technical Achievement. This production process was developed by Disney Feature Animation, under the stewardship of Roy Disney and Peter Schneider, as part of an eight-year co-development effort with Pixar and Disney's in-house team.

To date, animated films remain among the largest and most complex digital compositing projects being undertaken in our industry.

— Bob Lambert  
Walt Disney Pictures  
and Television  
Burbank, CA

### Viva the Studio System

We have long been aware of the death of the studio system, the system responsible for some of this country's best motion picture work. I am not saying that the current disarray of the industry has not produced some quality work. It's just that the good work seems to come from the same auteurs over and over again. In essence, these moviemakers have created their own invisible studio systems by constantly re-using key

personnel. They establish relationships with production houses and labs where they are assured of getting the quality work they desire.

The "hiring at the gate" that James Glennon, ASC wrote about in September's Filmmakers' Forum continues every day for the majority of film and television production. Actually, the conditions are far worse today than they have ever been.

With today's freelance system, typecasting and ever-rising personal costs — especially health care — our system rewards only those who do whatever it takes to get the job, skill or no skill.

Today, nearly every professional working below the line on a motion picture can be considered a freelancer. Most of the good ones have incorporated and are legally independent contractors. But the result is the same. If they do well, they *may* be asked to join another production. If they screw up, they dissolve the company and form a new one. Like the snake that shed its skin, it may look different, but it is just as dangerous.

Under the old studio system, quality work was rewarded with a permanent place in a studio. As long as you continued to produce quality work, you remained with the studio. If you relaxed and treated the job as any other job, you were replaced with someone who was willing to do the work. This went for all levels of production, from the director of photography on down to the lowest production assistant. Those with relatively minor jobs were rewarded with the opportunity to learn and move up within the studio system.

Nowadays, if a director does a few comedies in a row, he or she will get scripts for nothing else. The same goes for a director of photography who does a couple of good horror flicks. This typecasting negates an individual's talents and aspirations by creating an inaccurate method of assessment: you are only as good as your last work.

In the studio system, the same





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cinematographer could be commissioned to do vastly different projects. From grand-scale movies to personal comedies, a good cinematographer was a good cinematographer.

And now more than ever, individuals are finding themselves locked into positions because of the need for health coverage. President Clinton suggested a remedy that lets you take your health care with you. This means that an editor at a post house who aspires to be a cinematographer could accept an offer from a director who saw a spark in his or her eyes. But this reality seems to have a vertigo effect — the closer we are supposed to be getting, the further away it moves.

A union membership is a seal of approval indicating that an individual does quality work, and is not something to be bestowed casually. The same went for admission to the studio system. It was a path through which an individual was free to grow and build talents and experiences. Hard work was rewarded with acceptance and new challenges. But admission was just as difficult.

Today there is no admission because there is no studio. Hard work in one area goes unnoticed in all others. Word of mouth and who you know are the only methods of early placement and both are unreliable and often misused.

Just as the quality assurance of a union is still necessary today, so there needs to be a system of rewards for those who do the quality work they were hired to do. As Glennon said, "the skilled worker is this country's greatest asset." It's time we re-established a system to treat them as such.

— Anthony M. Burokas  
Philadelphia, PA

#### **Errata**

In our October New Products column a subhead described the Easy Reader time-code loggers as being for camcorders, when they can in fact be used with record VTRs as well. Telcom Research, the manufacturers, can be reached at (800) TIMECODE.

Also, the Los Angeles D/Vision user group's number should have been listed in Production Slate as (818) 956-0300.

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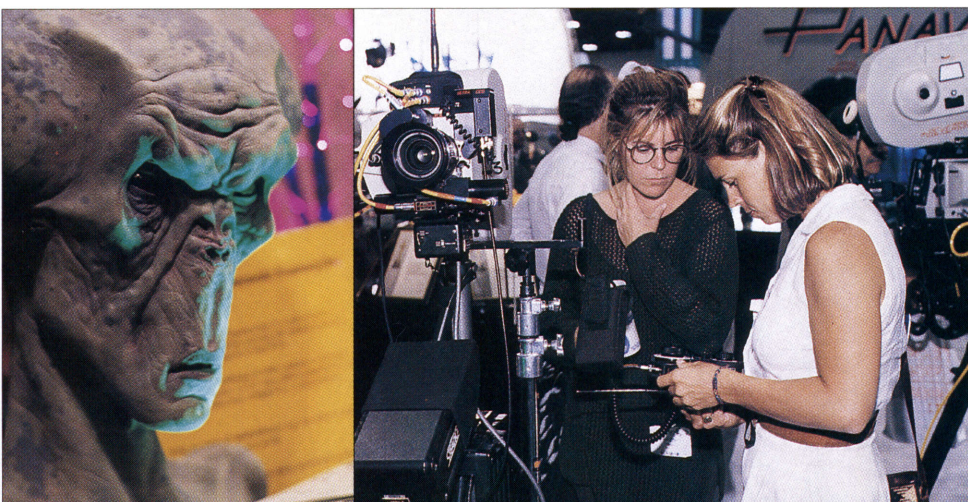


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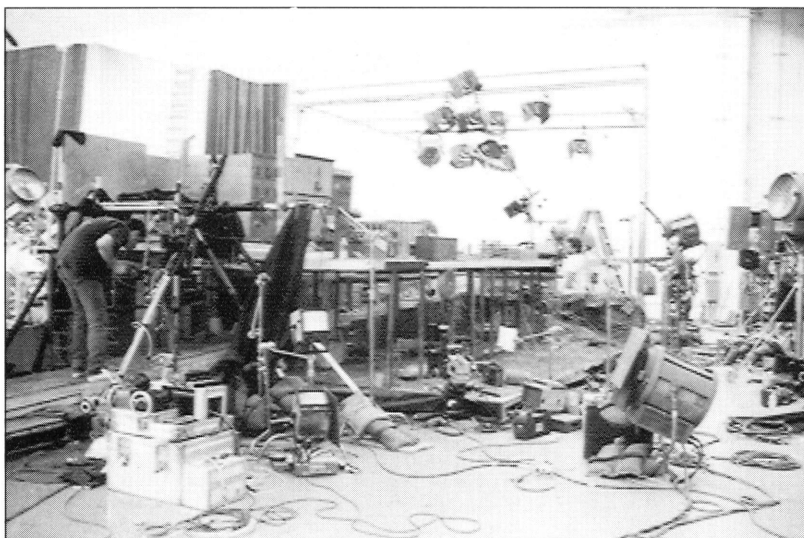
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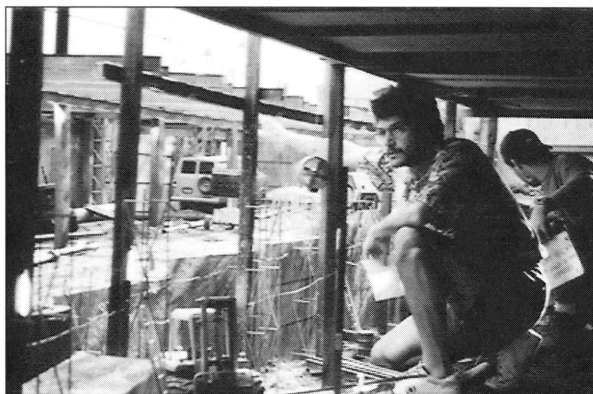
compiled by Marji Rhea and Ron Magid



## Speed a Rush

Any thriller that tells the story of a runaway bus in Los Angeles desperately needs special effects to convince audiences that a vehicle can even approach a high velocity on L.A.'s roadways! *Speed*, this summer's surprise blockbuster, not only marks the first feature film handled by commercial effects supervisor Boyd Shermis (who supervised eight Dodge truck spots, a Lipton Iced Tea commercial featuring Bo Jackson, and the Dodge Neon package introduced during the Super Bowl), it was also the first to employ model photography shot on the motion-control stage at Sony Pictures Imageworks. "They've been doing digital compositing for some time; this movie was the first project for their brand new film group," Shermis says. The company's model photography was headed up by director of photography David Drzewiecki, with whom Shermis has worked for many years on commercials, including a few with Jan DeBont, ASC. "We sort of grew up together professionally, so we already understood and trusted each other's judgment," says Shermis.

Digital techniques, combined with skillful miniature work and full-scale



**Top:** A miniature Hollywood Boulevard set is lit for a six-camera daylight shot during production of *Speed*. **Below:** *Speed* model photography cinematographer David Drzewiecki examines the miniature subway set.

a four-story elevator-shaft set. The problem was that the shaft was actually supposed to be over 50 stories high, and the filmmakers wanted to see the elevator plummeting down it. "There were seven

shots they asked us to do," Shermis says. Grant McCune Design built a 50-story miniature elevator shaft, which was photographed using motion-control techniques, with various details composited later. (The large winch and cables that follow the elevator as it plummets to the ground in the finished film, for example, were computer generated.)

A sequence featuring a derailed subway train was created using a scale model of the runaway train composited digitally into the live shots of the L.A. underground system. "That sequence was done almost entirely using miniatures constructed by Sessum's Engineering Co.," Shermis says. "We did four motion-control shots using 1/8-

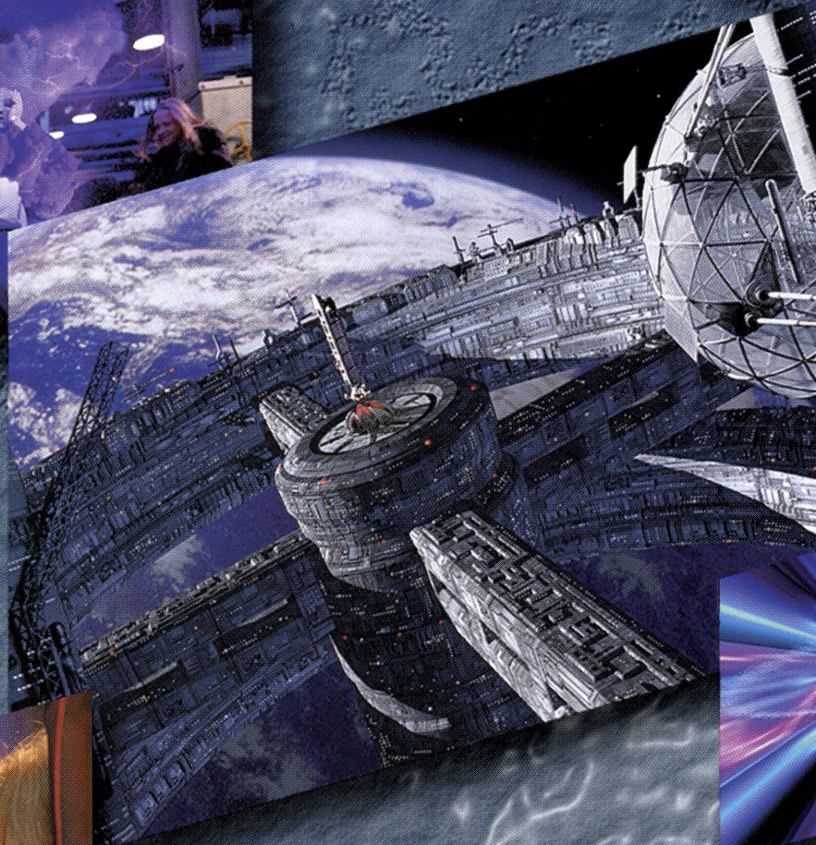
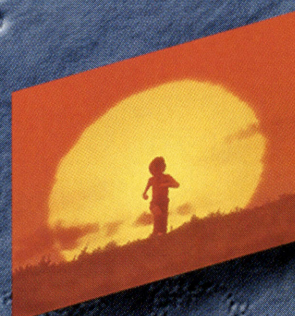
scale train models, which means that each of the two cars was 7 1/2 feet long. Then Sony Imageworks digitally composited our miniature train into the live-action environment of the Los Angeles subway. We went down to the actual construction zones where they're tun-

neling out new holes and set up and shot a few plates of people running in terror through the subway. When we comped in our motion-control miniature, it looked as if we'd filmed an incredibly fast train running through a real tunnel."

The derailed subway train ultimately careens through several underground construction sites, splits in half, shoots up a utility ramp, bursts through a string of I-beams and lands on Hollywood Boulevard. "Once the train left the tracks, the miniatures were free-flying, so it was all wild, high-speed photography," Shermis says. David Drzewiecki photographed the miniature trains and subway process plates. All of the shots



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Above and below: *Xaos* created this "liquid wizard" effect for the feature film *The Pagemaster*.



in that sequence of the film, the director of photography notes, were completely synthesized by models and miniatures. "Most of those shots had as many as six cameras rolling with 180-degree views of the miniature set," he says. "Great care had to be taken to prevent the cameras from seeing each other. Jan DeBont wanted us to photograph the miniatures exactly as you would photograph a live full-scale stunt. My gaffer, Scott Campbell, and I used very narrow Mole PARs to get the high stop and a tight 1/8-scale beam spread. The whole crew did a great job thinking how and where an eighth-scale person would really work in an environment like that." The only shot that wasn't a miniature in that sequence was the final crash, which was shot live on Hollywood Boulevard with a full-scale stunt. And that shot utilized computer enhancement in the form of a digital matte painting to suggest that there was a huge subway construction site in the middle of Hollywood Boulevard.

As far as helping the bus remain up to speed, Shermis supervised a sequence in which the bus makes a 50-foot jump over a non-existent gap in the freeway. "We did a couple of shots to establish that break," Shermis recalls. "We shot the real bus going 60 miles per hour down an existing freeway, then painted out sections of the road and painted in the construction environment in the computer, which was very difficult."

Complicating the task of digitally painting in the road construction was the fact that the live-action plate was photographed from a moving heli-



copter which was panning, tilting, zooming and bouncing around. "In order to digitally add the gap in the freeway, we had to track every axis of motion seven times for multi-planing, over something like 300 frames," Shermis says, shaking his head. "There are now five shots where the bus is either heading toward the break or jumping over it, and two were among the toughest ever attempted in terms of tracking live-action footage."

### **Xaos Enhances *The Pagemaster***

Xaos used computer animation to create a liquid character which takes *The Pagemaster's* hero, Macaulay Culkin, from the real world to the cel-animated fantasy world of the film.

Richard (Culkin) is a cautious child whose greatest fears become reality when a freak storm drives him into the public library. Stunned by a fall on the marble floor of the library's rotunda, Richard gazes up to see large murals of storybook characters on the ceiling begin

to melt and spill down around him, first in drops, then in gushes of liquid paint. As the paint accumulates around him, it takes on a life of its own, chasing Richard around the dark library stacks. Everywhere the flowing paint hits, a cel-animated world is revealed, until finally the paint swells up around Richard in a great splash; seconds later, he is transformed into a cartoon character and transported to a fantasy world. From that point on, the film is rendered in traditional cel animation until the very end, when Xaos' computer animation provides a transition back to the real world.

In the first computer-animated sequence, Richard looks up at a brightly painted mural on the dome of the

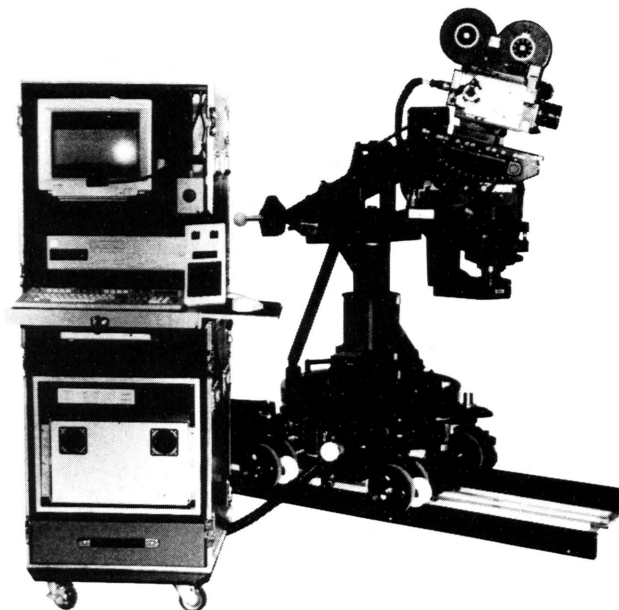
library's rotunda just as it begins to melt, warping the bright colors of the image until they swirl into large streams of paint. Xaos animators began with frames from the live-action plate, applying a 2-D image warping technique and specialized lighting process to

give the animation highlights and a dimensional quality. A 3-D effect was then applied to this underlying imagery to create the illusion of paint dripping off the ceiling and splashing into puddles on the ground. Xaos' animation supervisor, Tony Lupidi, manipulated objects to behave like thick, viscous liquid and used the colors of the melting mural to map the surface of each stream of paint. Xaos composited the liquid paint into a series of live-action shots in which Richard dashes around the rotunda, reacting to the paint streaming down around him and splashing in puddles on the floor.

As the animation progresses, the streams of paint coalesce to form the shape of a seething dragon, and then transform into a raging wave that courses through the library. To animate the motion of the flowing paint, Xaos developed a particle system that uses physical properties such as force and velocity to control the motion of the wave in a realistic fashion. Working from animatics provided by the traditional animation crew, Xaos animators pushed



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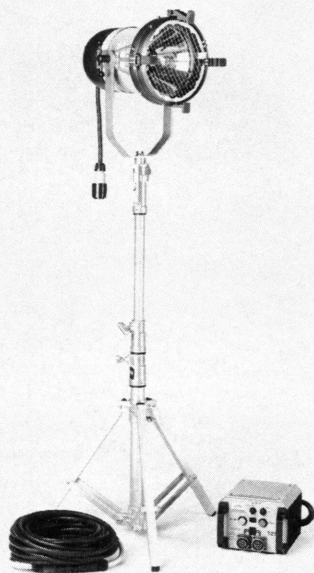
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the limits of the CG technology beyond creating realistic motion, adding exaggerated timing and movements to impart the feel of a traditionally animated dragon.

In several shots, a great wave of paint chases Richard through the library, picking up speed and momentum as it courses through the stacks. As it splashes up against objects in its path, the wave transforms the real world and reveals a fantasy realm — the cel-animated world. To achieve this effect, Xaos composited layers of film elements, including the live-action plate and an animated cel layer, with the CG. In addition, the cel animation crew, led by animation director Maurice Hunt, added a layer of sprite elements to the computer animation to impart a greater sense of dramatic timing to the wave. As the wave of paint picks up speed and volume, it becomes increasingly menacing and finally engulfs the entire scene, transporting the viewer to the cartoon fantasy world of *The Pagemaster*.

In the final moments of the film, when Richard leaves the cartoon world to return to the real world, Xaos animators provided a transition between cel animation and live action with a brightly colored swirling vortex that emerges within a cel-animated vortex as it spins above Richards and the Pagemaster on top of the library's dome. The vortex sucks Richard up and deposits him safely back to the floor of the rotunda.

For information: Xaos, 600 Townsend, Suite 271E, San Francisco, CA 94103, (415) 558-9267, FAX (415) 558-9160.

### Digital Magic

The visual effects studio Digital Magic, which produced the visual effects compositing and animation for the television series *Star Trek: The Next Generation* and *Deep Space Nine*, was asked recently to create effects for the trailer to the feature film *Star Trek Generations*. Given a two-week turnaround time, visual effects supervisor David Stipes's first order of business was to determine whether to build the trailer's starship as a conventional model and shoot it with motion control, or to build a 3-D computer model and animate it using a Silicon Graphics workstation. "Either model would have produced a

great-looking effect," says Stipes. "However, creating the ship as a 3-D model allowed us greater flexibility in designing and modifying the shot, especially given the time constraints we were working with."

Digital Magic chose Amblin' Imaging to create the ship, star field and 3-D lettering. Initially, Amblin' created low-resolution versions of these images and sent them to Digital Magic. These low-resolution images were used with elements from Digital Magic's and Paramount's *Star Trek* library of effects for test compositing. "Using our D-1 compositing tool made a great deal of sense," commented visual effects compositor Pat Clancey. "It is much faster to experiment and try different ideas at video resolution than to do all of that work at film resolution with our Quantel Domino."

After the look and timing of the shot was locked down, Amblin' sent high-resolution files to Digital Magic's Silicon Graphics workstation, where they were transferred to Domino via Quantel's Gateway. Using the Domino, visual effects compositor Pablo Helman composited the final sequence.

For information: Digital Magic, 3000 West Olympic Blvd., Santa Monica, CA 90404, (310) 315-4720, FAX (310) 315-4721.

### Lost in Space

London-based special effects and animation company Lost in Space have created and produced the title sequence and several special effects vignettes for *Death Machine*, a science-fiction thriller which had a general release in Britain in late summer.

*Death Machine* is the debut feature film from former special-effects man Steve Norrington and is billed as an unashamedly commercial and accessible film which follows the adventures of a P.R. woman who finds that her company is secretly building a killing machine. She consequently becomes involved with a cyborg tough-guy and a mad scientist.

According to Norrington, "the film is intelligent without being intellectual. But at its core the film is basically cool-looking people beating the shit out of a psycho robot. I wanted it to look high-tech yet industrial. Although I didn't want it to look as slick as *Terminator 2*, I didn't want it to look as broken-down as



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For Ixtlan Productions—Director: Oliver Stone; Producers: Jane Hamsher, Don Murphy, Clayton Townsend. For Pacific Data Images—Visual Effects Supervisor: Rebecca Marie; Visual Effects Producer: Daniel Chuba; Art Director: Carlos Arguello; Lead Animator: Wendy Rogers; Animators: Adam Chin, Betsy Asher Hall, Cathy Wagner, Larry Weiss.

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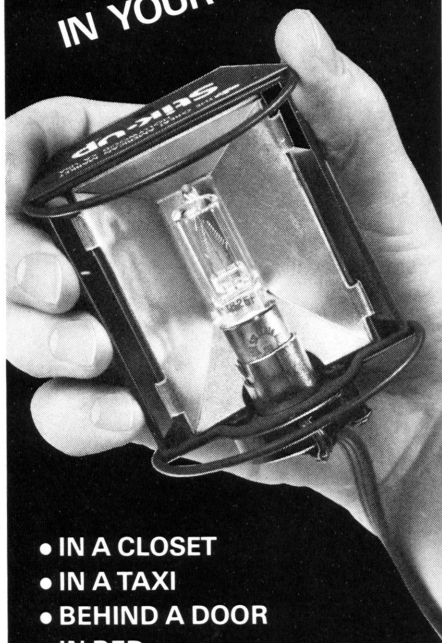
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*Brazil.*" With this in mind, Norrington approached *Lost in Space* special effects supervisor Christian Hogue, whom he first met when they were both working on a commercial for Mitsubishi.

The 18-second titles show hot metal forging itself into the title of the film and the names of the two leads. To make the metal look as realistic as possible with subtle playing of light and shadows, *Lost in Space*'s computer graphics artists filled the screen at 2000 lines of film resolution. Using the company's custom-written "blobby" software, the team was able to make the molten metal merge and separate in an organic way. The interactive lighting and motion blur were achieved with Renderman software.

*Lost in Space* was also employed to work on a scene in the film wherein the male protagonist's brain is drained. In his mind's eye, the hero can see his personality streaming away as streams of digital information are sucked into a vortex. This sequence was created using Prisms and Renderman software. The team also wrote a unique renderer which was capable of mixing several different computer graphics styles to achieve an architectural walk-through sequence in which a group of eco-terrorists plan an attack on a building.

For information: *Lost in Space*, 50-51 Berwick St., London W1V 3RA, 44 71 494 4673, FAX 44 71 437 0490.

#### CIS

CIS used high-end computer graphics systems and the facility's proprietary digital compositing system to create more than a dozen whimsical effects for this summer's *Little Rascals*. Much of the computer work will probably not be recognized by audiences as effects at all. For example, a scene in which Stymie catches a baseball in his hat looks on the surface like an ordinary bit of action, but in fact was composited into the shot by CIS technicians.

Many of the effects were created by CIS' computer graphics department using SGI workstations running Flame and Matador software. Among them is one in which Alfalfa, who's having a nightmare, dreams he is falling off a rocky cliff into the sea. CIS artist Peter Koczera took a bluescreen shot of the boy and added it to the location scene. In so doing, he added a move that makes it

appear as if Alfalfa is heading for the rocks at frightening speed.

Koczera also used Flame to create an effect for the movie's final scene. Petey, the troupe's phlegmatic terrier, lies on the floor and rolls his eyes dolefully. As such an action was impossible, Koczera was obliged to replace the dog's eyes with a pair borrowed from a human actor in another shot. "It's a deceptively complex shot," explained Davis. "It's composed of small bits and pieces taken from several different sources."

Many other effects were created in one of the facility's electronic optical printing bays. Digitized film images were loaded into the system, which was then used to create composites. In one scene, CIS technicians placed a graphic into an Etch-A-Sketch to show the kids designing a go-cart at superhuman speed.

In another classic *Little Rascals* scene, Alfalfa performs at a talent show after unwittingly ingesting soap; when he starts to sing, bubbles pour from his mouth and drift over the audience. The scene was finished by artist Steve Bowen in CIS' electronic optical printer, which was used to articulate bubbles shot on location and add others created electronically.

For information: CIS Hollywood, 1144 N. Las Palmas, Hollywood, CA 90038, (213) 463-8811.

#### Space Station is Launched

Planet Blue has opened the Space Station, a facility for visual effects, graphics, animation and compositing. Equipped with a Silicon Graphics Onyx Supercomputer with Discreet Logic Flame and new Macintosh Power bay, the Hollywood-based company is offering its services to producers of commercials, film, television, interactive media, games and virtual-reality projects.

The Space Station's modular design allows Planet Blue to network capabilities for easy access throughout the facility, providing the economy and flexibility of 2-D graphics and the animation of the resolution-independent Silicon Graphics Onyx to synthesize 3-D organic objects.

The SGI engine powers the Discreet Logic Flame, whose platform functions change through software inputs. With Xaos Tools Pandemonium



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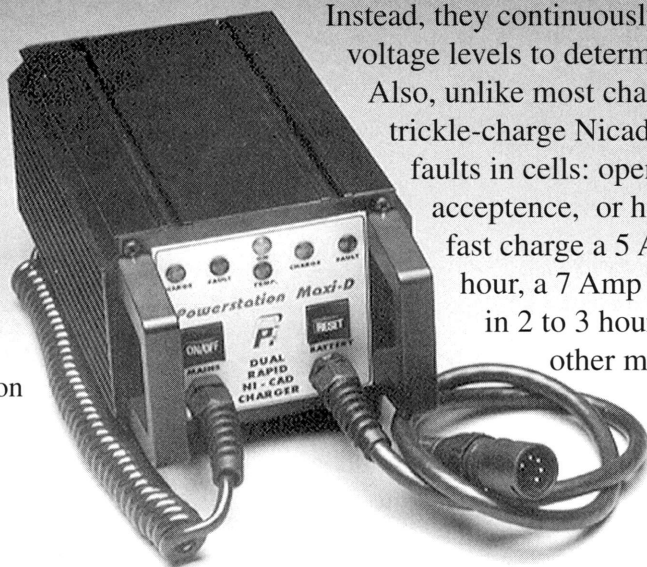
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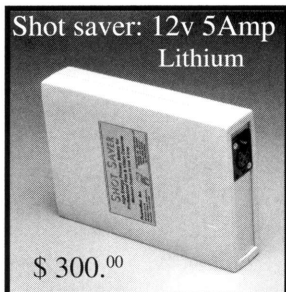


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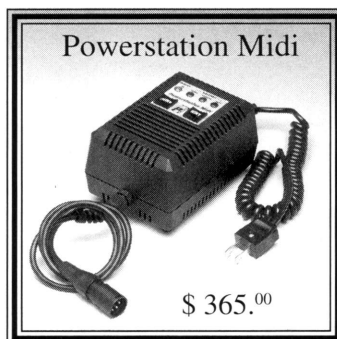
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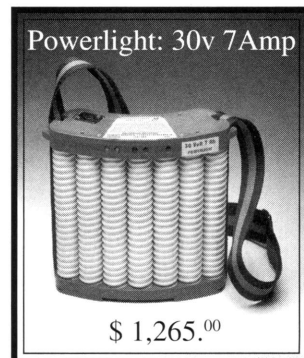
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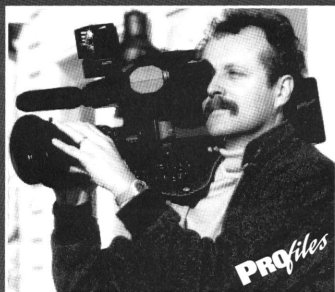
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For 2-D visualization, the Space Station is equipped with the Macintosh Power Bay, which commands the Fractal Designer Painter for paint, Elastic Reality for effects, the Debablizer for image translation, Photo Shop for compositing and Macromind Director for multiple-format production, including CD-ROM.

The Space Station has been engineered to optimize effects work for the production community. "We can design, share files, and network our entire facility from digital transfer and image manipulation to effects, graphics, animation and compositing," says Planet Blue president Maury Rosenfeld.

For information: Planet Blue, 1040 North Las Palmas Ave., Los Angeles, CA 90038, (213) 871-8280.

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AdVenture Film & Tape has completed a spot for the 1995 Ford Contour and Mercury Mystique car lines. The 60 second spot, completed start to finish in just 10 weeks, had a shooting schedule that included Paris, Grenoble, Holland, Tokyo, San Francisco and Inyo Valley, CA, as well as postproduction effects that included 26 layers of compositing.

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cut onto the road.

Initially, all background plates were edited together. Using a playback source, the actual car movements were then shot on stage to follow the background movements. Some of the perspectives had to be manipulated to align with the turns that the car makes following the road. Chris Kern at AdVenture meticulously designed effects to enhance the small details of each transition. He added considerable effects to the Ginza segment (which alone utilized 26 layers of compositing) to create rain where there was none, put in the appropriate car rain effects (i.e. wipers, sloshing water, etc.) and replaced a large neon cigarette billboard. CIS executed the finishing of the spot with Kern supervising the design and assembly of all the compositing of transition effects.

For information: AdVenture Film & Tape, 1034 North Seward St., Hollywood, CA 90038, (213) 460-4557, FAX (213) 462-0571.

#### Upcoming Events

##### November 30-December 3:

Special Format Film Festival, American Cinematheque, various venues in Los Angeles. For information: (213) 466-FILM.

##### December 10-11: 2-Day Film

School, Hawaii. Day one covers film production, day two film business. For information: Hollywood Film Institute, (800) 366-3456, FAX (213) 933-1464.

##### December 9-11: Robert

Bordiga's Nuts & Bolts Production Seminar, Kissimmee, Florida. For information: On-Budget Features, 163 Amsterdam Ave., Suite 315, New York, NY 10023, (800) 755-PROD.

##### January 5-7: ShowBiz Expo

East, New York City. For information: (800) 854-3112.

##### January 13-15, 1994: 2nd Annual

International Film Financing Conference (IFFCON), San Francisco. For information: (415) 281-9777.

##### January 20-22: New films

from Germany, American Cinematheque at the Directors Guild Theater, Hollywood. For information: (213) 466-FILM.

##### January 28: Conference on

emerging technologies in the entertainment industry, sponsored by MENTOR (Motivated Entrepreneurs Networking to Organize Resources). For information: (213) 629-0654.

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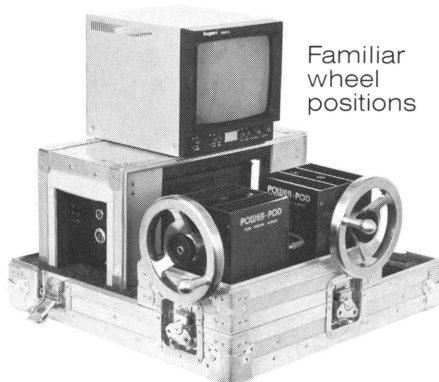
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Presque toutes les maisons de post production (à Paris et Londres) ont équipé leurs télécinémas de lecteurs AatonCode ; cela permet de transférer le film sur vidéo en son-synchrone avec une efficacité redoutable.



# Bang Bang Bang Bang, Ad Nauseum

by John Bailey, ASC

In September, over the three-day Labor Day weekend, I made a serious effort to catch up on the major summer films I had missed. I saw six films along with about two dozen trailers for the autumn releases. Not a single one of the trailers (not to mention the features themselves) was devoid of considerable firepower. I'm not speaking of just action excitement, but of a veritable litany of handgun and automatic weapons discharges, incendiary effects, stabbings and throat slittings. There were also, of course, a few garrotings and numerous beatings of women. This is studio entertainment, after all.

But before your P.C. antennae start bobbing around, let me say this. I don't believe in censorship. It *does* violate basic freedoms, and it doesn't work. I don't support any alliterative watchdog group such as the Christian Coalition. I *do* support my own conscience.

We have all been deluged recently with magazine cover stories documenting, as individual and national tragedies, the "senseless" murders on our streets and in our homes. We've digested heart-rending profiles of pre-teen murderers who could barely entertain the concept of mortality before they were swallowed up in the blitz of news that is attendant on an act as effortless as squeezing the trigger of a cheap handgun.

We're tired, angry, and frustrated by our seeming inability to have any influence over the ever-escalating statistics of real-life murder, rather than the artifice of movie mayhem that is so routine and unreal to us as filmmakers.

We've heard plenty of finger-pointing and buck passing from Congress, the Media, and the giant conglomerates that pass for studios and which crank out our "entertainment." Nobody's

to blame. We're all at the video store.

I have been wanting to put down my thoughts on screen violence for some time, but I'm finding the path into the subject to be somewhat daunting, like Daedalus standing before his own creation, the Labyrinth. As a cinematographer I have tried to be responsible, or at least conscious, about the amount of, and approach to, violence in the films I have photographed. I think it became a

guns into the tin ceiling. It was loud. It was dumb. I was ashamed.

Two days later I told the cinematographer that I couldn't continue the show (and I really did need the work). He felt I had left him in the lurch and promised that he would never work with me again. And he didn't. But, painful as it was, I think I crossed a personal Rubicon of self-respect that day and addressed a sense of my own part in the

use and misuse of filmed violence. Even within the cartoon clichés of this forgettable film, an embryonic reference emerged that serves me to this day.

An ironic footnote to this tale is that a short time later Nestor Almendros phoned

**Because we live and work in such a violent society, it is natural that our films reflect and explore this violence. But often we only explore it deep enough to wallow in its muck.**

me. I had met him in Paris in the late Sixties when, fresh out of film school, I made a pilgrimage to France to meet my idols, the cinematographers of the Nouvelle Vague. Nestor had called to ask me to be his camera operator on the upcoming *Days Of Heaven*. Thus I ascended from the classic slough of despond to a friendship with one of the gentlest humanists who ever looked through a lens.

I had accepted an offer to do an MOW with a cameraman who had been a very real mentor to me, a man whom I had assisted for some years. Accepting the job on short notice, I wasn't able to read the script in advance. I went into the production stone-cold.

At the start of the first day's shooting, machine-gun toting "terrorists" charged the camera, herding a group of scantily clad beauty contestants into an abandoned Quonset hut where they were soon to be held hostage. These very bad guys had just hijacked a beauty pageant. I swear, this really was the storyline. Is it high-concept enough for you? Between grunts and vague threats of unmentionable sexual acts, these goons fired their

me. I had met him in Paris in the late Sixties when, fresh out of film school, I made a pilgrimage to France to meet my idols, the cinematographers of the Nouvelle Vague. Nestor had called to ask me to be his camera operator on the upcoming *Days Of Heaven*. Thus I ascended from the classic slough of despond to a friendship with one of the gentlest humanists who ever looked through a lens.

I don't mean this to be a cautionary tale about the efficacy of doing "the right thing." But I guess I do believe in some kind of just reward. I do believe there is strong correlation between our work, the kind of films that we choose to work on, those we refuse to do, and the people we become, certainly over the long haul.

It may seem I've diverged from



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the nominal topic of this article, but there is for me an emotional "throughline" that remains intact. And that is pretty simple. As filmmakers, like any artists, we inhabit our work. Not only do we take it home at night, but often, especially when we are on location, our location *is* our home. We form and re-form *ad hoc* families and residences that are as real to us as our own spouses and children.

Because we live and work in such a violent society, it is natural that our films reflect and explore this violence. But often we only explore it deep enough to wallow in its muck. This is where the question of a demarcation arises. What is exploration and what is exploitation? And who decides?

I've always had difficulty with this question. It gets to the heart of the issue of censorship. Because one's intent and point of view are key factors, it is no easy subject to investigate. But recently I saw two films that so crystallized the matter that everything started to fall into place, and I found for myself a clear distillate of the dilemma.

I hope you have seen both *Natural Born Killers* and *The Shawshank Redemption*. They are magnificently made films, brilliantly conceived and photographed. They cast an unflinching look at the strains of violence in Americans and in our films. At times both films make you want to avert your eyes. Otherwise, they could not be more different.

The philosophical stand these two films take on the issue of violence may be fundamentally different. But just as telling and more germane to this article is the photography of that violence.

*Natural Born Killers* is a manic, all-stops-out journey through the madness and darkness of the American obsession with violence as *acte gratuit*, an existential fury that defines all that is alien, angry, and anti-life in our character. Its style is hyper-kinetic and frenzied, mixing media and formats in a non-logical way that is said to have been determined at times by the flip of a coin. Its images seem to spin out of control, held in place only by an incantatory soundtrack, pivoting around the threnodic voice of Leonard Cohen.

*The Shawshank Redemption* is visually very measured and controlled, often almost processional. Its character and narrative skein are nuanced and defined by circumspection, a tone set by the

reflective timbre of Morgan Freeman's elegiac voice-over narration. The plot points are neatly resolved, though the ending may seem too attenuated to some. The depiction and eruption of violence is unflinching but distanced. None of this makes the film remote. In fact, it draws you in it and by the end the cumulative power of empathy is heroic.

*The Shawshank Redemption*

## If our own sensibilities are askew, if we have no moral compass to guide us, what point of view are we going to create?

observes moments of awful violence enacted upon the character played by Tim Robbins. And violence or the threat of it permeates many of the relationships in the film. But the point of view of the violence is external. It is an ugly fact of the characters' lives and its force is elemental and Darwinian. It is not heroic; it is not insightful; it is not stylized, slow-moed or eroticized. The camera records, documents, then retreats and plays out the action in long shot and in the shadows. The point of view is that of empathy for the victim. In short, it is human. And this is crucial to the transforming majesty of the film.

There is no doubt that the team of Oliver Stone and Robert Richardson have re-defined many of the parameters of mainstream theatrical image-making. The raw power and immediacy of their films has been one of the defining markers of American cinema in the past decade. It has come at a price. The dragon has finally swallowed its own tail. Technique has become *raison d'être*. And therein lies the cautionary tale.

*Natural Born Killers* places you inside the violence, makes you a part of it. Its point of view is that of the killers, not because of a clear critical or moral perspective but because that's where the action is. The defining aesthetic is MTV. And if it is meant to be otherwise, if it is meant to be a *de facto* critique of or satire of the American and media obsession with violence, I can only say that on this level it is, for me at least, a complete

failure. The filmmaking tools which are wielded so artfully and with such panache distort the putative intent. The film eroticizes violence, wallows in it and struggles to incite the viewer.

If you are an impressionable child, an angry adolescent or an alienated sociopath, you will probably leave *Natural Born Killers* feeling jacked up. But if you are a rational adult you will feel drained, sullen, enervated. You leave *The Shawshank Redemption* feeling renewed, buoyant, sanguine. Both films spend a good part of their screen time inside the confines of a

prison. Your experience of that space could not be more polarized by the two films.

The space and light of *Natural Born Killers* is that of a de Sadean stage set replete with *grand guignol* effects, the whole *grotesquerie* awash in blazingly assaultive light and aggressive camera motion. The space and light of *Shawshank Redemption* is, like its narrative, almost classical. Roger Deakins and Frank Darabont brought close scrutiny and a sense of the importance of detail to their work. You have to watch this film closely. You have to live in its images. They don't beat you over the head. And because your head is left intact, you *experience* the film, not just watch it.

The restraint of Bresson's camera in *A Man Escaped* has no inherent moral force superior to the first-reel frenzy of Truffaut's *Jules And Jim*. Nor is *The Shawshank Redemption* with its formal pictorialism superior to the visual disjunction of *Natural Born Killers*. My point is not to negate one style of filmmaking in favor of another.

Nor do I wish to anathematize *in toto* the efficacy of violence in the arts. From the Greek tragedies, Jacobean drama, French theater of the Revolution, German *Sturm und Drang*, to Antonin Artaud and Peter Brook, the use of violence in theater has been the vehicle for probing the complexities and dysfunctions of the human condition and the means to catharsis and growth. Violence is as endemic to the human soul as is love. Both emotions are interwoven with



the fear of and inevitability of death. Experiencing violence and death in our art is a very real way of affirming our life.

But we must know that there are dangerous shoals when we set out to conceptualize and visualize violence, especially in film. A camera may be a mechanical recording device but the eye behind it is artful and intentional—always. Storyboards are not comic strips. They are blueprints for complex and powerful images. If “actions have consequences,” so do images. We create images. We are conjurers. And, like it or not, we are teachers. Our images are more haunting and more influential than any of the words that will ever be written about them. If you can deny that fact, you can deny the movie memories of your own childhood.

Several years ago during pre-production of *China Moon* I had to deal with these issues as a director. There is a murder in the film: Madeline Stowe fires a handgun at close range into the head of her husband, Charles Dance. So, in the interest of responsible research, I found myself one afternoon on the police firing range in Lakeland, Florida, 9mm semi-automatic pistol at the ready. I had never fired a handgun. I felt I needed to experience the sensation. The emotional shock of the first discharge far exceeded its ballistic “kick.” The sense of power was instant and terrifying. I understood. That same week, also for research, I subjected myself to viewing the full autopsy of a local murder victim. I had never seen a human body rendered into parts. The sadness of this needless death and of my own empathic mortality haunted me for days.

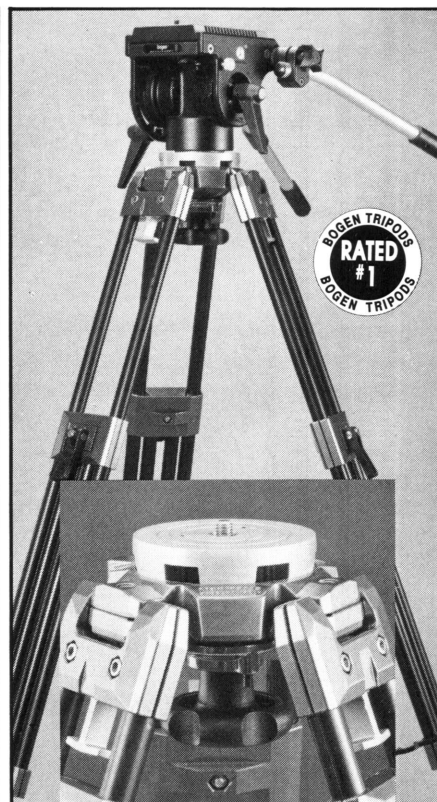
I decided to film in a realistic way the scripted autopsy of the woman found murdered in her kitchen at the beginning of the film. I also filmed in detail Ed Harris’ forensic investigation of the murder victim, with emphasis on the “bonding” between detective and deceased. Joe Laude, a homicide detective who served as our tech advisor, said that even in death the murder victim often “speaks” to him. And I photographed Charles Dance’s murder as simply and as directly as I could. The second gunshot, the one to his head, was rigged with an elaborate prosthetic to cause a stream of blood to pulse out under pressure, just as I’d seen in documentary footage. It was graphic and shocking.

And it is not in the finished film. The close scrutiny of the autopsy, the even closer, humanizing look of the murder victim as Harris stares into her open eyes, and the shot in the head of Charles Dance all made the preview audience uncomfortable and was reported to have pulled down the survey scores. Some of the offending material quickly went onto the editing room floor; more fell victim to strategic compromises. At first, I felt completely co-opted, but then my own anxiety made me very tentative and uncertain about the choices I had made in being so direct — that is, so “uncinematic” — in the depiction of murder and its aftermath.

But the ensuing time has convinced me that it was correct to de-glamorize the violence and to focus on its human consequences. In the end, my own complicity in agreeing to “tone down” the darkness of this film noir compromised the moral perspective I had intended. It had reduced the spiritual agony of Ed Harris, a once moral man now become accessory to murder, to the level that some in the audience would see as a man just trying to save his own skin. This was not the film Roy Carlson, the writer, and I had set out to make. While I remain proud of *China Moon* for many reasons, it is my own cautionary tale. Directing it, I learned much about the intersection of screen violence and box office. The final irony was that my effort to deal with violence and death responsibly proved not to be too violent but too much of a “downer.”

I believe we have a great responsibility to the people who see the images we create. But we have as great a responsibility to ourselves. If our own sensibilities are askew, if we have no moral compass to guide us, what point of view are we going to create? Part of the responsibility we have to ourselves is to know and respect the trust we have been given to influence others.

Film is arguably the most influential of all of the arts; it is the art form of choice for young people. How we choose to show them those images of life and death, the emotive wallop they pack, and the imprint they make on their hearts and minds, are questions that we cannot keep in the shadows. ❧



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# Stargate: Adding Layers in the Outer Limits

by Jean Oppenheimer



Film clips courtesy of Quantel

"Let me say flat out that I don't think I want anyone to know about the Domino because then I won't be able to get on it any more." Visual effects supervisor Jeff Okun, who used Quantel's digital image manipulation system on the science fiction adventure *Stargate*, makes his remarks only half in jest.

Originally, the film's digital effects were to be completely computer-generated at CGI effects house Kleiser-Walczak, which had hired Okun as their visual effects supervisor. The ever-expanding workload and tight schedule, however, made it necessary to farm out part of the job. Cinema Research Corporation (CRC), which was doing traditional titles and photo-opticals for the picture and which had recently installed a Domino for digital compositing, urged Okun to see what their new tool could do.

"We had 12 shots we had to get out in three days for a *Stargate* promo reel," says Okun. "Now, nobody can do 12 shots in

three days. We had also heard that the Domino didn't have range, was bad on contrast, and that its image quality wasn't up to film. [But] we had nothing to lose so we did it."

So impressed were Okun and *Stargate* director Roland Emmerich with the resulting shots that they decided to try compositing a shot on the Domino and inserting it into the actual film. Within 30 minutes, visual effects artist Mitchell Drain had four different versions of the composite for Emmerich to see. "This is what you promised me CGI could do," Emmerich told Okun. "Why aren't we doing the whole show here?"

After seeing Drain's handiwork on a few more shots, Okun decided to take elements created in the CGI world, scan them into the Quantel system and do a significant amount of the compositing there. ("The CGI world is much slower and less interactive in this area," he explains). The Domino contributed so significantly to the finished

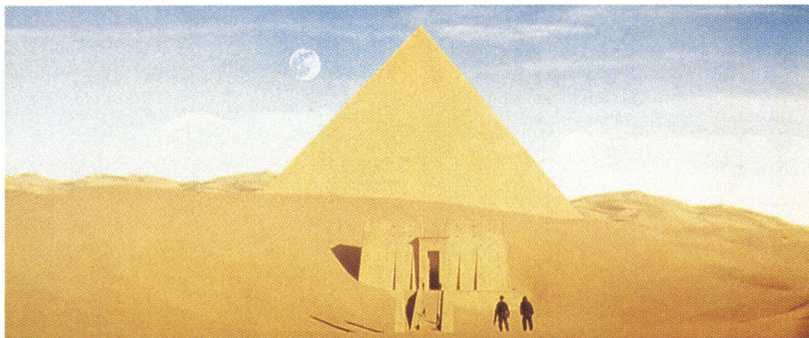
film that Emmerich insisted it receive a credit along with Kleiser-Walczak.

Consisting of scanner, recorder and two levels of workstation, the system scans film to digital format, manipulates it, then transfers it back to film, all in full resolution. The workstations' image-altering capabilities include multi-layering and compositing, wire removal, color correction, titles, matte painting, retouching and repair work. Both workstations provide motion tracking and image stabilization.

"CGI is good at creating two- and three-dimensional images and making them move, whereas Domino is good at taking a pre-existing two-dimensional image and faking it into looking like a three-dimensional one," explains Okun. "And it's cheaper to make a 2-D image than it is a 3-D image. You couldn't make a dinosaur on Domino but you could manipulate and add shadows that would take CGI weeks to do."

To illustrate his point,





Okun notes an effects shot Drain made with the Domino. The scene shows a prehistoric landscape, with mountains, moons, blowing sand, and two "mastages," imaginary prehistoric beasts. Two live-action kids walk into the shot and toward the beasts. "Mitch matted the kids into the scene," says Okun, "then suggested painting in their shadows. With CGI animators, I would have just skipped the shadows altogether because it would have taken days and would have been such a painful process experimenting with what density level the shadows should be and which direction they should fall in."

Within minutes, however, Drain presented the effects supervisor with two perfectly formed shadows. "I don't have to take a little blurry shape and track the kids with it," explains Drain. "I take the actual walking person, diffuse them, flip them over and stretch them in perspective."

Drain next grabbed some of the blowing sand, lightly dissolved it over the figures so they blended in even better, and then added three fuzzy crescent moons to the background. Okun thought the shot went by too rapidly, so Drain stretched it, slowing it down. Total time to accomplish all of the above tasks: three hours.

The Domino relies on the pen and tablet interface common to most paint systems: the object on the screen corresponds to the movement of the pen on the tablet. "If you tell me to move the clouds over," explains Drain, "I

just drag them around the frame with my pen until I find the position you like. Clouds too dense? I start pulling the density down. Too dark? I just change the color. I adjust it until you're happy. There's a button that says 'do it,' and if I press that button it will process the whole clip."

A lower-budgeted but equally ambitious film, *Evolver*, also owes its finished look to the Domino. A sci-fi techno-thriller about a virtual reality robot gone berserk, *Evolver* marks Blue Rider Pictures' first foray into the digital effects realm. Some ninety percent of the effects shots involved shooting Hi-8, digitizing it and then transferring it to film, and Blue Rider chose Digital Magic for postproduction because of the facility's background in tape. The company's demonstration of the Domino convinced Geoffray and his partners they had found the perfect tool for their needs. "The Domino al-



lowed us to sit around a screen and actually see the compositing happening before our eyes; we have the power to create as we're watching."

Pablo Helman, digital artist on *Evolver*, notes that the changes made so quickly with the

Domino would have taken two or three days to accomplish on any other platform. He adds that Domino — and products like it — are turning digital effects into an interactive process, with the film director, producer, cameraman or special effects supervisor now able to guide the look and direction of the opticals in a way he or she never could before.

Visual effects supervisor Okun says that each system on the market — the field includes IBM's Power Visualization System (PVS), Silicon Graphics (SGI), and Kodak's Cineon System — does something particularly well. According to Okun, the Domino's main advantage is speed. With the Domino, if the director doesn't like the location of an object — such as Drain's moon — the digital artist simply drags it across the frame with his pen until the director says 'stop'. By comparison, on some systems the artist has to mathematically figure out the pixel coordinates, type them in, then wait for the computer to make the calculation and pop in the object. To alter its placement, the artist has to go back to the grid and program new coordinates.

"And, remember," adds Okun, "you're only dealing with a single frame. Once you get the moon where you want it, you have to do the same thing for the

**Opposite page:** This "2-D for 3-D" shot creates the illusion of an animated 3-D pyramid whose top opens. The pyramid was composited over sand with a matte-painted sky. This page, top: To create this shot, a five-foot pyramid model was composited over sand, the matte-painted sky and the live-action foreground. This page, bottom: Combining a live-action plate with actors in desert terrain, a still plate of a sand dune, a still plate of a miniature city, CGI space ships and a shot of smoke pots (filmed on an insert stage), this shot creates the illusion that ships are flying away from a bombed city while people approach the ruins.



The villain Ra (Jaye Davidson) transforms into an alien.



say, 'Gee; the moon's too bright.'"

Because its technology came from the video world — it's an outgrowth of Quantel's Harry, Henry, etc. — film people have a tendency to snub it. Also, criticism of the Domino tends to center around two perceived limitations: its fixed resolution and its closed architecture.

Domino supporters counter that any time you take off-the-shelf software and load it onto an all-purpose machine, the overall speed of the entire system suffers. The Domino is so fast because it is dedicated solely to the purpose of multi-layering digital compositing. Quantel builds its software into the computer. "You can't call up a spreadsheet or do accounting on it," says Drain. "It's solution-specific." The system is open to other file formats through the Domino Gateway, a

file conversion platform that can take files off of Mac, Alias, Wavefront, Softimage and other 3-D software, and digitally bring them into the Domino for compositing.

Some companies prefer more flexibility to mix and match. "We didn't want that," says CRC's Minkow. "We wanted a compositing tool and that's what we got." He also notes that the company, which in May 1993 became the first facility to go on-line with the Domino (it served as a beta test site), recently purchased a Silicon Graphics computer and 3-D software so that it can create 3-D animation, feed it into the Domino and composite it there.

As for concerns about fixed resolution, Drain points out that the Domino renders at over 2,000 lines (3,000 pixels by 2,000 lines). While some systems are

capable of rendering at as much as 6,000 lines, he contends that they rarely do, chiefly because it isn't practical. Bob Coleman, president of Digital Magic, says that the company opted for the Domino system partially because of its resolution, which he contends is much better than the optical quality people are used to.

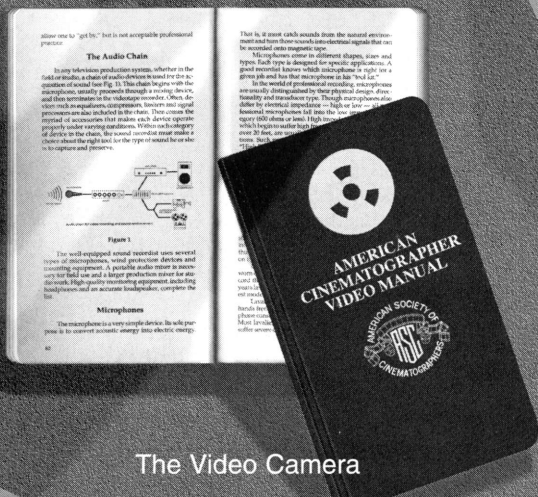
Companies like ILM and PDI put digital effects on the map with their groundbreaking and extraordinary work, but there are only so many productions on a scale with *Jurassic Park* and *Terminator 2* — and only so many film companies and commercial operations that have that kind of money to spend. "What keeps low-budget films from doing optical or very high-end visual effects isn't that they can't pay for the same effect that ends up in a bigger picture," says Jeff Geoffray, co-founder of Blue Rider Pictures, which produced Trimark's modestly-budgeted but effects-laden *Evolver*. "It's that they can't afford all the development and trial-and-error it takes to get to that image." By dramatically reducing the time normally required for photo-optical and physical effects, the Domino gives small productions a run at fairly elaborate effects.

For all its wonders, however, the new digital technology can seem very intimidating. "A lot of people look at it and see a very imposing gray area," says Drain. "Cinematographers are artists in their own right and when they compose a picture, compose a frame, the idea of throwing that into the digital world and having it changed is probably pretty frightening to them. But their art stays intact. If anything, we visual effects artists simply try to augment what they've done. Cinematographers [should be] encouraged to come down and be involved in the process. We're not out to take things from one artist and change it for our own purposes."



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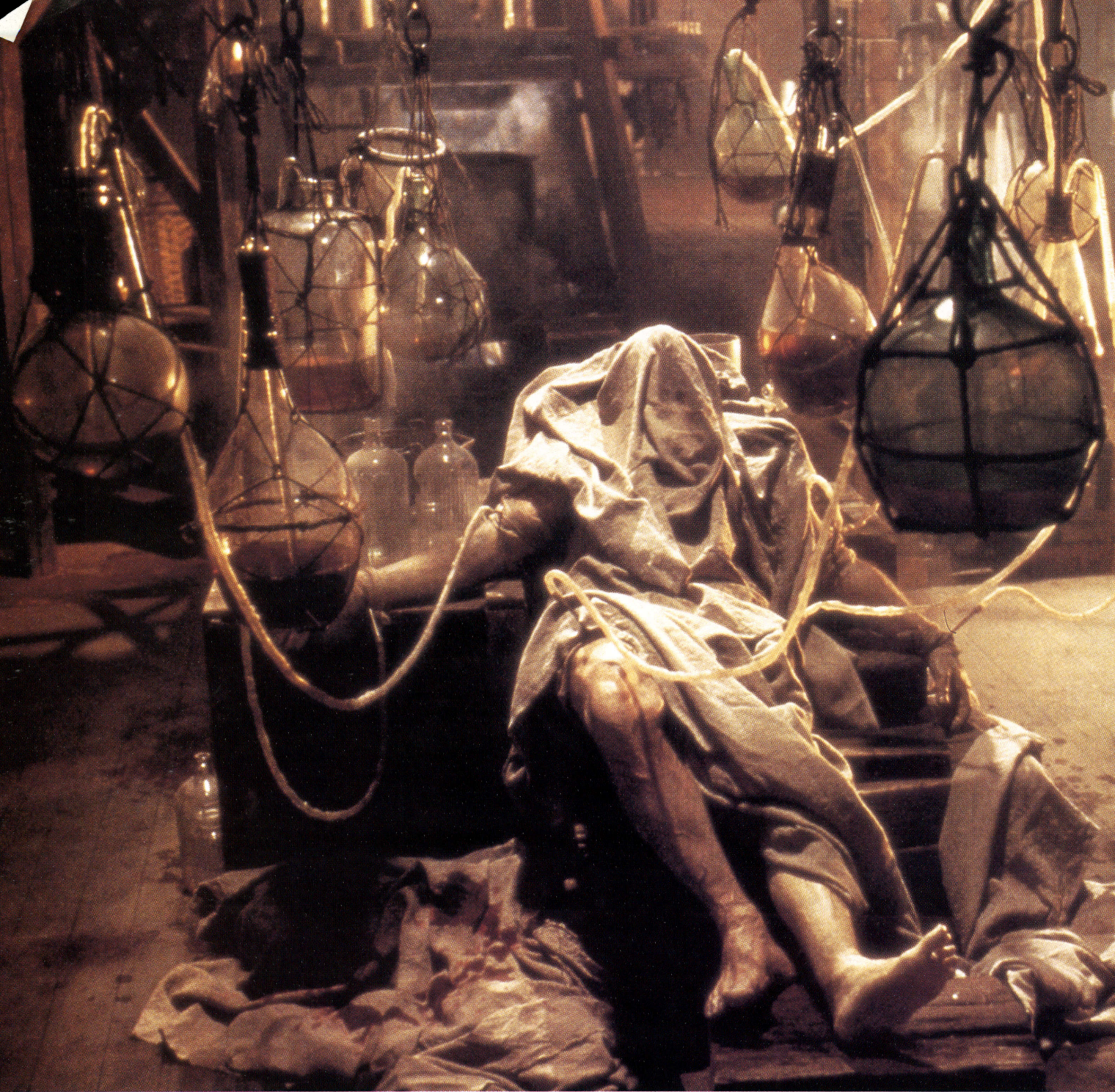
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**Dr. Frankenstein**  
(Kenneth  
Branagh)  
ministers to his  
creation in his  
secret laboratory.

The legend of Dr. Frankenstein and the monstrous nemesis he created from body parts culled from graves, the gallows, and other unsavory sources has haunted the imagination of filmmakers almost from the inception of the medium, beginning with Thomas Edison's short 1910 rendition. The story has been filmed hundreds of times since, but only a handful of makeup designs for

Frankenstein's creation have been noteworthy. Surprisingly, Edison's effort produced an eerie monster, played by Charles Ogle in a fright wig and greasepaint makeup that exceeds expectations.

The definitive monster was created in 1931 by the supreme Jack Pierce, who built up cotton, collodion and mortician's wax over the skull-like features of

Boris Karloff, introducing audiences to the squared-head-and-neckbolts design that has yet to be surpassed. In 1957, England's Hammer Films unleashed *The Curse of Frankenstein*, with Phil Leakey's crude but effective latex and mortician's wax makeup transforming Christopher Lee into a closer approximation of Mary Shelley's original description. There hasn't really been a





Photos by David Appleby, courtesy of TriStar Pictures

# New Look for Classic Creature

Transforming Robert De Niro into Mary Shelley's mythical monster.

by Ron Magid

noteworthy Frankenstein's monster since — until now.

In the wake of *Bram Stoker's Dracula*, Francis Ford Coppola has again gone to the Gothic well, as Universal did in the Thirties, to produce the logical followup: *Mary Shelley's Frankenstein*. The film is directed by Kenneth Branagh, who also essays the role of Dr. Victor Frankenstein, and Robert De Niro

plays his hapless creation. This film treatment refers to De Niro's character as "the Creature," one indication of how radically Branagh's film departs from what has come before. Thanks to an intensely faithful script penned by Frank Darabont, *Mary Shelley's Frankenstein* is everything its title implies. But those expecting the Creature to be the one described in Ms. Shelley's

tome may be in for a bit of a surprise.

Daniel Parker is second in a short line of premier British makeup artists, beginning with his father, Charles Parker, who assisted another great artist, Stuart Freeborn, in creating the ape-men for the first makeup effects film of the modern age, *2001: A Space Odyssey*. "My father always said to me, 'Whatever you





**Above: *The Creature* (Robert De Niro) gets a cosmetic touch-up. Right: Makeup supervisor Daniel Parker applies his skills to a patient De Niro.**

do, never become a makeup man — it's a dead-end job!" Parker laughs. "I actually went into films to become a producer, and then Stuart Freeborn offered me my first job doing effects makeup on *Return of the Jedi*." Parker eventually settled into a career as one of Britain's top effects makeup artists, despite his father's advice. But after lending his talents to such diverse projects as *Indiana Jones and the Temple of Doom*, *Enemy Mine*, and *Dream Child* (with Jim Henson), Parker decided to give up showy effects work and concentrate on honing his skills as a straight makeup artist, working only with paint on such films as *A Passage to India* and *Empire of the Sun*.

Parker, along with his team of mad scientists at Shepperton Studios' Animated Extras, brought together the best of both the straight makeup and prosthetics worlds to create the Creature. Although De Niro's makeup is elaborate, including a series of full-body prosthetics that completely alter the actor's physiology, it's also in many ways quite simple, going against the prevailing "rubber monster"



wisdom, which seems to be "make it busy." "I try not to do that," Parker insists. "I'm a painter before a prosthetic makeup artist. When it comes to prosthetics, I prefer to put very little on and do it with paint."

To augment his research into the Creature's filmic predecessors, Parker delved deep into period surgical and morticians' handbooks as his designs for the De Niro Creature took shape on paper. "I learned generally how to cut up a body to make sure the incisions were correct," he says. "I kept doing drawings as I learned about medical procedures and stitching work — the tools they had and what they

were capable of at the time. We went through a lot of designs, a lot of drawings. The important thing to remember is that it wasn't a question of creating a monster. This is a man who's been brought back to life, and his brain doesn't belong to his body. He's totally lost and he's been abandoned by Dr. Frankenstein, so he's a very sad character."

In fact, Mary Shelley's book reads almost like the story of an abused child and his uncaring parent. Still, Parker refrained from imparting a childlike quality to the makeup, feeling that was De Niro's job: "He did it beautifully. My side of it was creating the look — it's more technical."

One hallmark of a great makeup is how much it transforms the actor while still retaining his essence in the character.

As Parker conceived design after design, one at last leapt out: a study of the Creature's face that, despite its twisted lip, disfigured right cheek, "dodgy" left eye and close-cropped hair, bore a remarkable resemblance to Robert De Niro. "That was very important to me," Parker exclaims. "If you look at his right cheek, you'll see he's even got his mole there! We sculpted it into the prosthetic as an anchor point so you'd know where you're at — the prosthetic mole goes right over his own real one. You don't want to lose Robert De Niro; it'd be a crime. We wanted his face, his eyes and his charisma to come through. If we lost that, we might as well have been using anybody."

As crafted by Parker, the Creature's features required something in the neighborhood of six prosthetic pieces. First there was a headpiece that covered De



Niro's entire skull, including the back of his head, one side of his neck, one of his ears and his forehead. The close-cropped hair was punched into the headpiece one strand at a time, a tremendous amount of work considering that a new headpiece was needed for each day's shooting. Next, a piece covered the center of his neck, part of one cheek and the whole of the other, while a false nose and upper and lower lip pieces rounded out the creation.

The only stylized feature of Parker's design is the mouth, whose twisted upper lip conveys the Creature's pathetic character. But Parker didn't want to shape the Creature merely by adding layers of foam latex; he wanted to alter De Niro's facial structure underneath the appliances to create an organic look. "The shape of the Creature's mouth was something I had in mind even before I started sculpting the facial makeup," Parker says. "I life-cast De Niro with a little hook holding up his lip. Then I sculpted very thin facial prosthetics to build up the scar on his face that runs through the right side of his mouth.

"But I didn't just want to distort the Creature's face from the prosthetics on the surface. I also wanted to work from inside the mouth, using a hook again to hold up the corner of his lip. The scar on the face carries into the dental appliance that covered the front of his teeth on that side of the mouth; there's stitching on the gums as well. But since Bob had to speak, only the front of his teeth could be covered. Since there was nothing to keep the dental appliance in place from behind, supporting the lip as well took a lot of work. I started off using a rigid hook to hold up his lip, but when he smiled, it suddenly achieved nothing. We ended up with a hook on a little bearing, which I called a swing arm with a spring in it, and that pivoted arm was flexible enough to give the lip a natural movement when he talked. The shape



Prosthetics expert Callum King adds stitches to a mold of the Creature's head.

of the Creature's lip was dictated by the swing arm, not the prosthetic; otherwise, the lip would always remain in the same position, which wouldn't have looked natural. It took a lot of time and patience and many design stages to get the false teeth and the hook swing arm to work."

Counterpointing the twisted lip on the opposite side of De Niro's face was what Parker calls the "dodgy eye," a discolored, dysfunctional orb peering out of the Creature's left socket. "The dodgy eye, I believe, is a first," Parker says. "I designed and painted the eye concept myself. I wanted to distort the iris, and therefore the pupil, and I also wanted a yellow jaundiced look to the sclera, or white, of the eye. To begin with, I asked a very good contact lens-man, Richard Glass, to devise a special scleral contact lens, which is a great big rigid lens. He set to work creating a lens with ridges on its surface that would distort the whole shape of De Niro's eye. Unfortunately, Robert didn't find that comfortable enough to wear for long periods. I ended up pushing for a 22mm soft lens. Just getting the paint work right on a soft lens is very difficult, so again we went through loads and loads of tests before we got one I was happy with." The finishing touch was an eyelid piece that was occasionally

used to distort the lid over the dodgy eye.

Though the facial makeup was the crowning achievement of Parker's Creature design, he set to work crafting a formidable pedestal for De Niro's pain-filled mask, transforming the actor's physique into a grotesquely misshapen but imposing sculpture. With its oversized left arm counterbalancing its massive right leg, the Creature's body achieves a surprisingly formal equilibrium reminiscent of Rodin. But was Robert De Niro — known for altering his body from role to role — prepared for the baptism of fire posed by Parker's elaborate facial and body makeup? "He wore prostheses in *Cape Fear*, but nothing like this," Parker said. "Then again, there's never been anything like this! I don't know of another full-body prosthesis that's a true prosthetic: our pieces were stuck down all over his body."

Mary Shelley's *Frankenstein* presented Parker with both more money and more time than usual, so he seized the opportunity to put into practice certain theories he'd developed about makeup, particularly when it came to creating the Creature's bigger arm and leg. "When makeup artists devise big limbs, most times they just apply a large arm or torso appliance, a depth of foam latex, on the actors," Parker



explains. "I wanted to develop a muscle system that worked beneath the prosthetic limbs, so you would see the muscles flexing under the skin. I started off thinking about pneumatics and other 'hard mechanics,' but none of that really gave me what I wanted.

"So I then went to what I call 'soft mechanics,' which basically involved different densities of foam 'muscles' that we attached individually over De Niro's own muscles to create a new muscle structure that extended and enlarged his own. The muscles were made very smooth and powdered, and the prosthetic 'skin' was only stuck down in certain places so it was able to move over the muscles as opposed to being attached to them, which would've defeated the purpose. The prosthetic 'skin' was designed to fit very tightly in certain places and loosely in others so that the arm moved well over the joints. I don't think this sort of thing has ever been done before for body prosthetics. Ninety percent of the 'new' stuff I did was based on ideas that I've had for a long time, and most of it was successful."

To further sell the idea that Frankenstein's creation was indeed built from several different bodies, Parker made the larger arm's prosthetic "skin" much darker than the rest of the Creature's body. "The big arm came from somebody else who was basically fit and strong and tanned," Parker explains. "It's covered with blond hair, whereas the rest of the body has darker hair. And, like the headpiece, every hair on the body was inserted one at a time into each day's prosthetics. My crew originally thought that I'd gone totally mad, but it did look good. I'm a real stickler for detail, and so is Bob."

To balance out the big arm, Parker also created a big hand in much the same way, creating a hard rubber "bone structure" under the prosthetic skin.

"When makeup artists extended actors' fingers in the past, they did so without extending the bones, so the knuckles lined up with those on the actor's hand and the prosthetic didn't move properly. In this case, I extended the Creature's knuckle bones so the hand would appear proportionately larger. Each bone was stuck separately to Robert De Niro's hand before the prosthetic went on. They were made of terribly simple materials: slush (rubber mask) latex with spring steel inside so they had a bit of give. The bones were reusable, but the prosthetics were not."

For the finishing touch on his innovative idea, Parker wanted to make the larger arm actually look considerably longer than De Niro's real arm on the opposite side, but without resorting to obvious tricks like building up the big arm's shoulder. Parker's ingenious solution: to cheat it by building a lift into the big leg on the opposite side: "The big arm's actually not that much longer than Robert De Niro's own arm; it was all done through the big foot. Incorporating a lift in the big foot raised the shoulder on that side, shortening that arm, while it dropped the opposite shoulder and the big arm, which made it look longer. I'm a great believer in simplicity, the minimum doing the maximum. It was hard to make a believable big foot with a lift in it — that took a bit of work. It helps to give a lopsided view of this man who's just totally lopsided."

While there was also a series of foam rubber muscles under the upper part of the larger leg, Parker found it wasn't necessary for the lower leg, where the movement of De Niro's real muscles translated well enough into the prosthetic. The texture on the Creature's buttocks where Frankenstein crudely attached the big leg is reminiscent of decayed elephant flesh hanging in saggy folds. "The whole point is that the leg's too bloomin' big, but Frankenstein desperately

tried to sew what he had together and make it all fit," Parker grins. "There's immense tension in some areas where it's been tucked too high, and a total lack of tension in others, where there's sagging. The different body sections had different texturing and coloring to them. I needed to know exactly what had happened to each part of the body before it was attached to the Creature. I imagine some parts of the body were hanging around for longer because they've decayed a bit and have a very strong texture to them. Basically, the whole thing's a bit of a botch job!"

If the face, arms and legs don't convince you of that, take a look at the Creature's torso, where nasty gashes zig-zag across a three-dimensional blueprint of the human form gone hopelessly awry. From a makeup artist's point of view, all that scarring promised a painless application, since the natural ridges wouldn't really have to blend into the actor's skin. But then Parker considered all the cotton stitches that would have to be sewn into the pieces by hand to seam up the Creature's countless surgical scars: "At first, those scars seemed like God's gift to prosthetic makeup artists!" he says. "One's immediate thought about a prosthetic like this is to end each prosthetic section along a scar. Unfortunately, we soon realized that this was not possible at all because we'd been planning to sew literally hundreds of stitches into these prosthetics, but if we had Robert De Niro sitting in the makeup chair while we were doing that, it would take way too much time. So I didn't end the pieces on the wounds, and most of the stitching was put into the prosthetics over the wounds before they were ever applied to De Niro."

Sewing those cotton stitches into the prosthetics wasn't the only tedious job. A particularly daring aspect of Parker's design is that the



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Creature's wounds heal through the course of the film, which required several completely different stages of prosthetics for the face and body, as well as additional prosthetics and other types of "dressing" to create intermediate healing phases between the major stages. "The Creature goes through a long healing process," Parker affirms. "There are basically three main stages of healing, but in those stages there are quite a few more mini-stages, based on the coloration of the skin and other things. Our first stage was called Stage Zero, which was pre-creation, before he had any blood in him. Stage One is when the blood's being pumped in and he first comes to life. Fortunately, the body prosthetic, which was a big part of Stage One, was only used at the beginning of the movie; he's dressed for the rest of the film. There were a couple other mini-stages before Stage Two, and within Stage Two there were 2a, 2b, 2c and 2d. During that second phase, we'd glue the wounds together or have certain bits of the wound open as the Creature slowly loses his stitches; they itch so he scratches them, and we actually rigged it so he could pull one out of his face, which was fun to do. Stage Three, after the wounds have pretty much healed, involved scarring, which changed depending on the temperature. The three stages were achieved either with sculpting, by playing around with the prosthetics, or paintwork. I must say Bob was very good about it all. It's extremely hard work for the makeup artist, but it's hard work for the actor, too."

Applying the full Creature makeup from head to foot initially took about nine hours for the first test; by the time Parker and company were putting it on De Niro for each day's shooting, they'd gotten it down to about six-and-a-half hours, quick considering the extensive amount of work that went into each aspect, from the face to the oversized arm and leg. "I like to get my

prosthetics on fast, so the pieces were very carefully designed to enable that," Parker says. "After a point, we were no longer dealing with the full body prosthetics thanks to costuming, which covered the rest of his body. We then got his face and hands down to three-and-a-half hours."

But getting the pieces on is only half the battle, as any makeup artist dealing with prosthetics will tell you: the big problem is keeping it on and maintaining it so it looks great for the closeups which are maddeningly shot at the end of the day, after the makeup has been put through the rigors of a full day's shooting. Compounding this age-old dilemma for Parker was the fact that De Niro wanted to cut his original 42-day shooting schedule down to 21 days. "What this of course meant was that he ended up wearing the makeup for 14 hours or more," Parker says, his voice rising with emotion. "Prosthetics are at their best up to four hours; after six hours they generally start to dwindle a bit, at eight hours you're beginning to push it and anything after that, you're up the spout! The first time De Niro wore the makeup for fourteen hours they started doing extreme closeups. Apart from a couple of shots on the lips, they actually looked good on screen, which I didn't think it was possible. I was really quite shocked."

Parker is quick to point out that "I'm only as good as the people I've got, and I had a crew of seventy on this film! I was very lucky to have the cream of the technicians that are here, and obviously without them and their input as well, I would never have been able to try so many new ideas on this film. I'd be lost without my heads of department, like Nik Williams who headed animatronics; Pauline Fowler who helped with a lot of the design work; David White, who did a lot of our research and development; and Paul Engelen, who put me forward for the job in

the first place."

In addition to the Creature makeup devised for both De Niro and Helena Bonham Carter as the female creature, Parker's crew built fully articulated dummies of the two of them, which he claims can withstand being put side by side with the actors themselves. They also made articulated Huskie dogs and cholera victims, as well as an animatronic chimp arm, an animatronic toad and a beating human heart! Parker's crew was also asked to devise lots of body parts so they could film Victor Frankenstein stitching his creations together.

*Mary Shelley's Frankenstein* gave Daniel Parker and his company, Animated Extras, the opportunity to have an R&D department and experiment with new materials and techniques, which have already begun to pay off on their next project, *Mary Reilly*, a retelling of Robert Louis Stevenson's classic, *Dr. Jekyll and Mr. Hyde*. Branagh's film also enabled Parker to imbue a sense of believability and pathos into Frankenstein's creation which may prove to be the benchmark for the inevitable future incarnations of Shelley's novel. Ironically, bringing the Frankenstein creature to the screen was never a particular goal of Parker's. "It never even occurred to me that making that creature was anything I particularly wanted to do until the moment Paul Engelen presented it to me I said, 'Oh, my God, yes!'" Parker grins. "Before I put the makeup on Robert De Niro, I hadn't really thought about the repercussions of the job, but as soon as I did, I suddenly realized I was up against the most famous makeup of all time! When it was on Bob, I thought, 'People are either going to love it or hate it, there's no in-between.' Those who love the Jack Pierce makeup will hate it, but those who are indifferent or who are looking for a fresh look will hopefully love it."

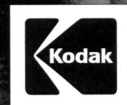


# GORDON WILLIS ON FILM

"There aren't any unbendable rules in filmmaking. It's an organic process. In the first 'Godfather,' you saw only Brando's eyes selectively, because we didn't want the audience to know what was going on inside his head all the time. Visual sub-text is interesting, because you're making an audience think in a certain way. The trick is to take something that's quite sophisticated and reduce it to the simplest possible terms...The use of relativity on the screen is wonderful: light and dark, big and small, good and evil. What you see and what you don't...magic in a frame. I love film."

*Gordon Willis*

Gordon Willis' credits include "Klute," "The Godfather," "The Paper Chase," "Parallax View," "The Godfather: Part II," "The Drowning Pool," "All the President's Men," "Annie Hall," "Manhattan," "Stardust Memories," "Zelig," "Pennies From Heaven," "Broadway Danny Rose," "Presumed Innocent," "The Godfather: Part III" and "Malice."





# CFC's Effects Give Life to Mary Shelley's *Frankenstein*

Computer Film Company uses modern methods to invigorate Kenneth Branagh's reinvention of classic horror tale.

by Ron Magid



Photos by David Appleby, courtesy of TriStar Pictures

When Mary Wollstonecraft Shelley penned the creation of the Creature by Dr. Victor Frankenstein, she wasn't terribly specific about how life was endowed to the assemblage of limbs and organs lying on the good Doctor's slab. Wrote Shelley, masquerading as Frankenstein, "It was on a dreary night in November that . . . I collected the instruments of life around me that I might infuse a

spark of being into the lifeless thing that lay at my feet."

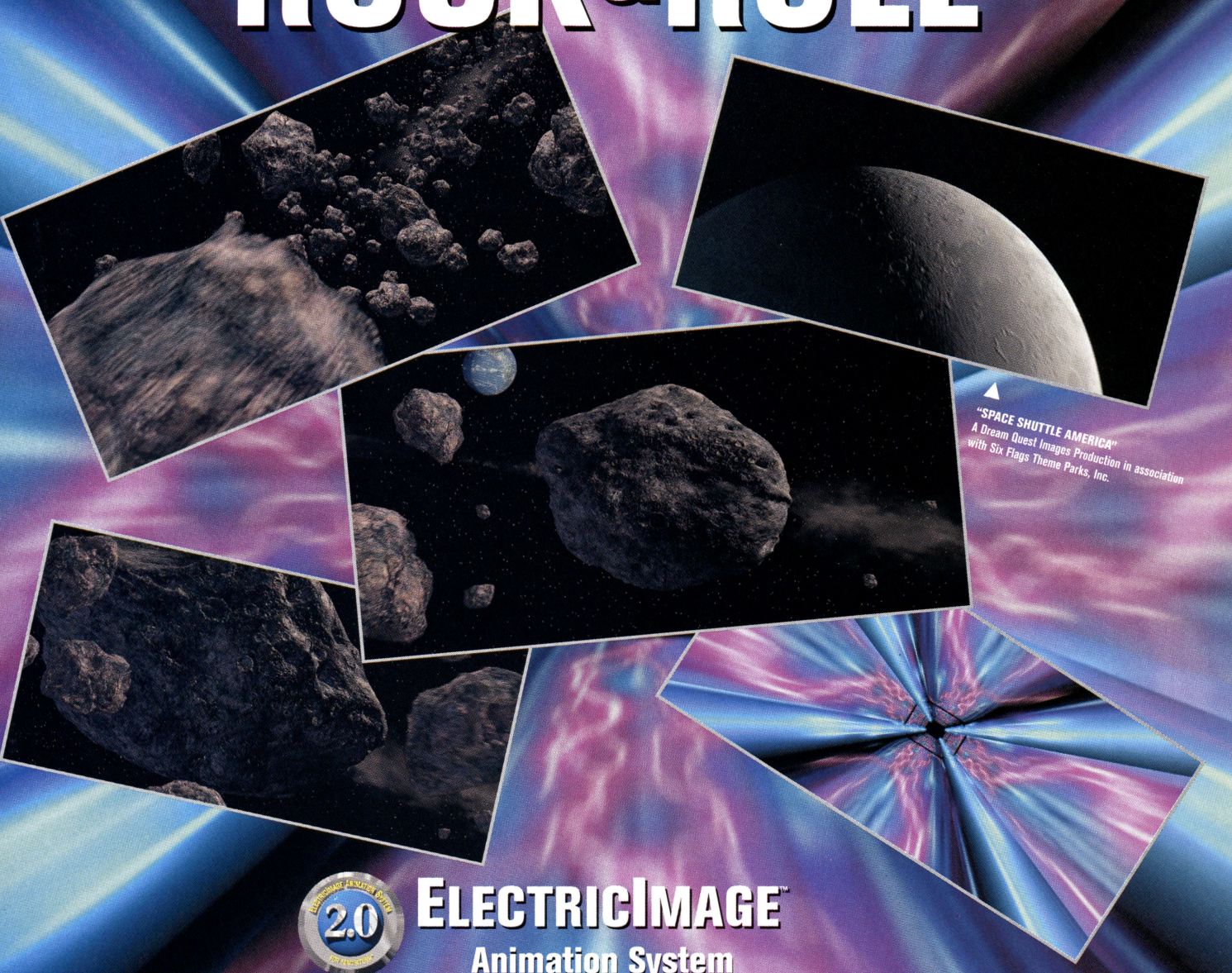
From the dawn of cinema, filmmakers have tried to determine just what Ms. Shelley meant. When Thomas Edison produced the first filmed version of *Frankenstein* in 1910, the monster was concocted in a large black witch's cauldron. In the classic James Whale films for Universal Studios, *Frankenstein*

(1931) and *Bride of Frankenstein* (1935), the monster's mother was lightning, raw electricity harnessed in the incredible art deco machinery crafted by Kenneth Strickfaden. These original *Frankenstein* films spawned an entire cinematic lineage into the late '40s. In 1957, England's Hammer Films reinvented Shelley's tale as *The Curse of Frankenstein*; the creation scene in that picture com-

**"It's alive!" Dr. Victor Frankenstein (Kenneth Branagh) defies scientific doctrine in his attempt to create life.**



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Top: Another view of Frankenstein's lab. Bottom: A wide view of the iceberg set.



sparks on the creation sequences were added by CFC," Watts says. "The production supplied various types of spark footage. CFC effects designer Paddy Eason chose some elements featuring a long spark arcing between two electrodes. In other cases, he used images of larger sparks coming from a single electrode, like the branches of the tree. Those images were scanned into the computer using our proprietary input system.

"Because the shots had a moving camera, it was necessary to track the sparks into the scene. Paddy used a combination of

binned the Edison and Universal approaches by dunking the monster into a coffin-shaped hydro-electric bath.

With a few new innovations, that is also the approach taken by director Kenneth Branagh in *Mary Shelley's Frankenstein*, TriStar Pictures' latest spin on the legend of the "modern Prometheus." In Frank Darabont's screenplay, Frankenstein has not only built an elaborate electricity-gathering laboratory; for good measure, he's also placed his lifeless creation in a saline bath filled with electric eels! As in the classic Universal films, live Tesla coils were used on-set to create a certain electricity in the air; to heighten the effect, the Computer Film Company stepped in to digitally enhance the images under the eye of veteran British visual effects supervisor Richard Conway. Chris Watts, an American who had previously served as effects coordinator for Mike McAllister on *The Hudsucker Proxy* and *Demolition Man*, was CFC's visual effects producer.

To bring this latest creation scene to life, director Branagh envisioned flooding the very air of the laboratory with electricity. "[Cinematographer] Roger Pratt shot the scene beautifully, which gave us a good starting point," Watts enthuses. "The [filmmakers] wanted to



have a lot of electricity in the atmosphere. Some was supposed to come from lightning and the rest from electric eels. Together, the lighting and the eels provided the 'animating force.' The [crew] used million-volt Tesla coils to generate electricity on the set. The problem was that [director] Ken Branagh, who also plays Dr. Frankenstein, wanted to be right in the middle of all of this ferocious sparking. The equipment was lethal, and if the electricity had hit any of the actors, it would have been all over."

Clearly, the production was not going to put its director and cast at risk; CFC solved the problem by adding most of the electricity in post, via computer graphics. "Nearly all of the

hand tracking and custom software to achieve this. For the larger sparks, he was able to animate a path through a sequence of frames, and use the computer to bend the spark to fit this path. In the course of doing this, he was able to add additional effects to allow for focus pulls, interactive light and perspective changes. By using genuine electricity as a starting point, he was able to maintain a degree of realism that would have been dangerous to film practically."

The upshot of CFC's involvement is a huge number of sparks flying through these shots: one wide shot has over 200 jolts. Of course, the company also had to deal with the electric eels. Since the on-set effects team used arti-



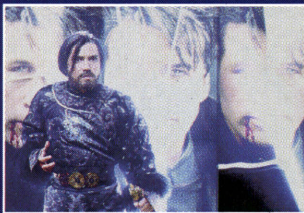
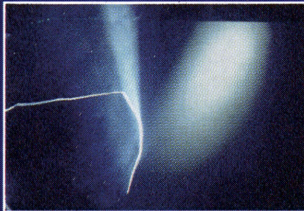
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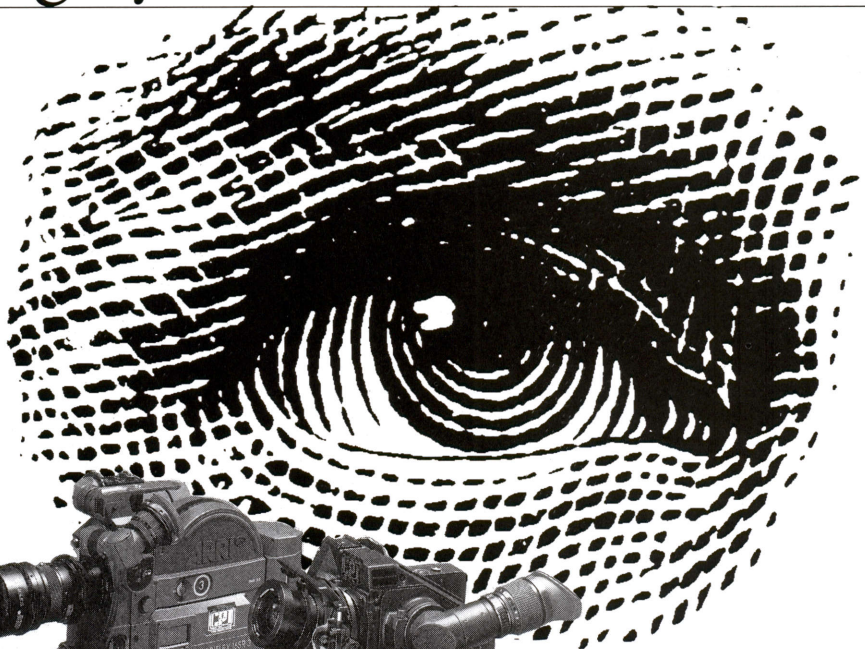
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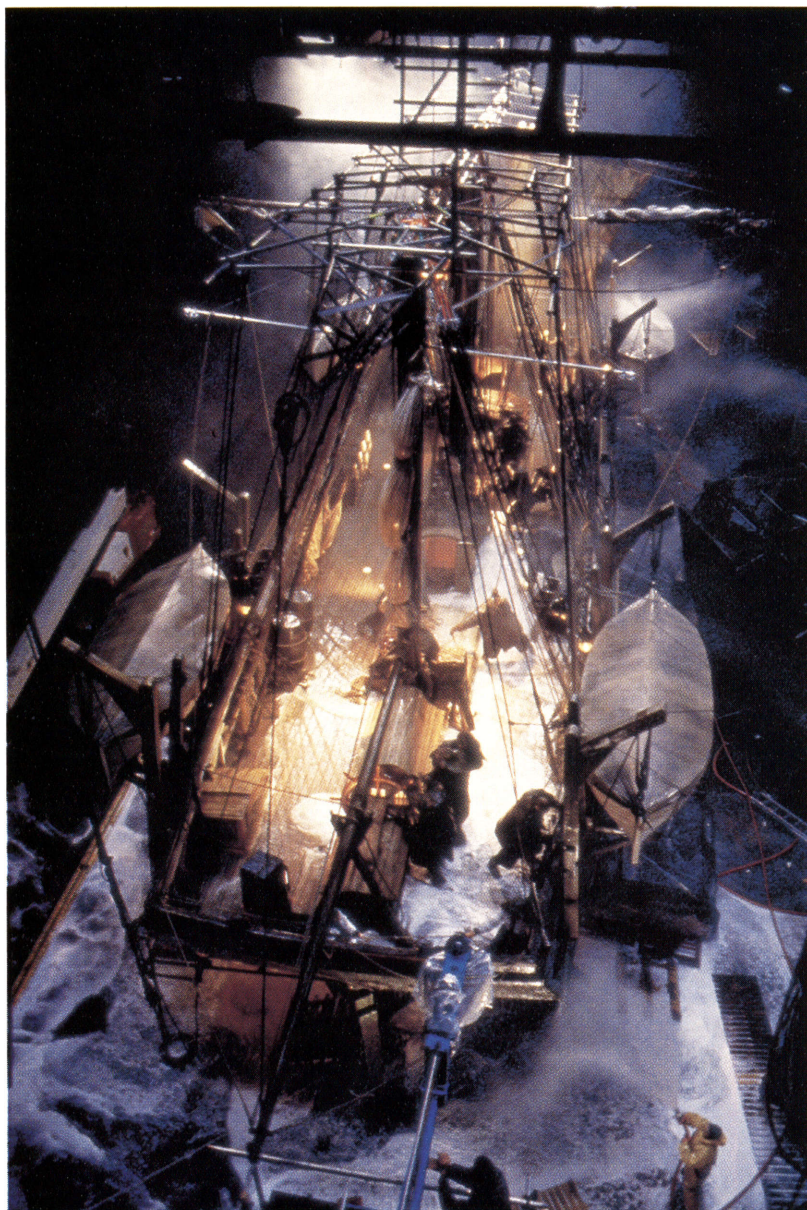


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*The Alexander Nevsky adrift on the iceberg set.*



ficial electric eels, CFC had to remove the rods that drove the eels in the creation tank, then add the electricity the eels were supposed to emit.

"Removing those rods should have been relatively easy, but it was particularly challenging," Watts recalls. "We were expecting steel rods, which would have been much easier to paint out, but on the day, someone decided to use plexiglass rods because they'd be harder to see. That would have been true had they used soft light on-set, but they ended up using hard directional light, so the rods were very

visible, with lots of kicks and highlights and bizarre distortions. We augmented our existing wire-removal program by writing some additional software designed to accommodate the distortion caused by the plexiglass rods, then successfully removed them."

By the time Victor Frankenstein promises to build a female creature for his hormonally-charged male creation, the pace of the story has accelerated to a fever pitch. The second creation scene is shorter, but offers even more voltage than the first. "Ken [Branagh] wanted to echo the

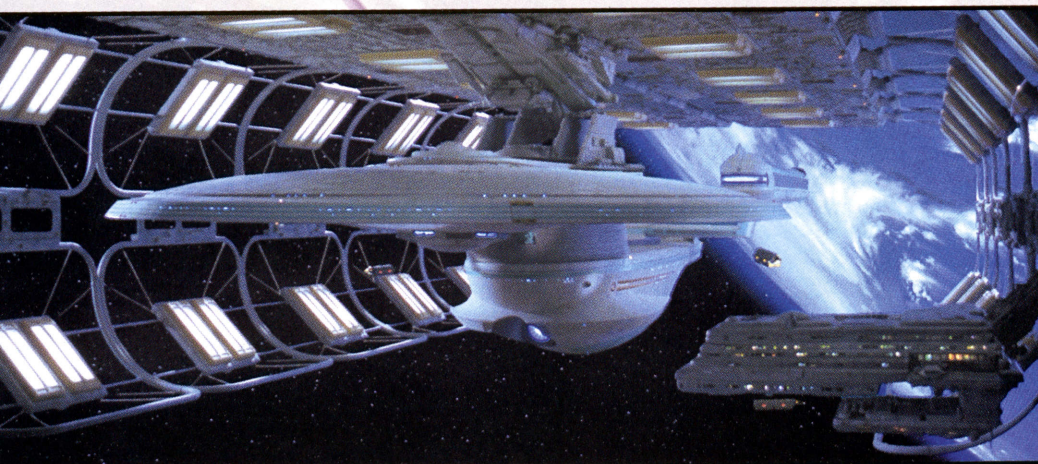
first creation scene exactly, so we didn't change the effects very much," Watts says. "It's a bit more wild, a bit more frenetic, and a bit more challenging. There are twenty spark shots in the first creation and only four in the second, but the plates for the second scene involved much longer Steadicam shots running through the set, so we had to track sparks onto every available point. Paddy had become an expert at tracking the electricity by the time we did the second creation scene, so it really looks as if the sparks are right there."

The progeny of this second creation scene is a female monster fashioned from the body of Frankenstein's wife, Elizabeth (Helena Bonham-Carter), who ends up as the object in a dramatic tug-of-war between Frankenstein and his monstrous creature. When Elizabeth realizes she's been reanimated, she's horrified and kills herself by breaking an oil lamp over her head. "We couldn't have Helena consumed by fire," says Watts, "because it would ruin her hair, so the production shot an animatronic robot of Helena with no face, and the second unit shot Helena's face against blue-screen. Then we took that image and tracked it onto the robot. It works okay. The robot wasn't that well animated, so we did a lot of work on that shot. We also added some of the fire effects."

These male and female creations illustrate one of the unspoken themes of Mary Shelley's *Frankenstein*: that inanimate objects can have a personality or sentience and play a part in the narrative. "That theme is illustrated by more than just the creatures themselves," Watts agrees. "It's also demonstrated by a huge lightning cloud that comes over a hill and proves to Frankenstein that electricity is a life-giving force, and by an iceberg that rises out of the water and stops a boatload of explorers near the North Pole. A lot of those 'animated inanimate objects' are effects we



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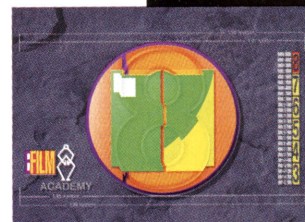
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created."

The cloud scene takes place during a sequence in which Frankenstein takes his family on a hilltop picnic. The doctor produces a lightning rod from the picnic basket and proceeds to draw electricity out of the large angry cloud overhead. CFC created the electric sparks jumping between the Frankenstein clan's fingers.

The ship shots were supervised by CFC designer Mark Nelmes. The ship itself was a half-scale model towed by another boat off the coast of Swansea on a bright sunny afternoon. Mark's job was to take that footage and transform it into a threatening, stormy night at sea.

For the iceberg shots, the production supplied a static shot of a polystyrene iceberg. All agreed that the original berg didn't look that great, so Mark and assistant Dominic Parker used Wavefront software to create a new iceberg from scratch. Dominic was able to animate water flowing down the sides, and create the chop at the base where the iceberg meets the water. The team matted it into a wide shot of the boat, the *Alexander Nevsky*, cutting through the water. In the final composite, the iceberg appears to fly out of the sea.

Miniature boats on stormy seas can spell the death of believability in any effects film, especially if they're not well-integrated with full-scale live-action footage. (Remember the epic sea battle from William Wyler's *Ben Hur*, which features cuts from actors mercilessly tossed from bow to stern to a model ship with stiff wooden figures nailed to its deck? "This looks a little bit better than that!" Watts laughs.) One of CFC's shots of the miniature *Alexander Nevsky* is actually the first shot of the film, followed soon after by three or four more of the company's effects shots. As if this didn't create enough pressure, these miniature shots had to intercut seamlessly with live-ac-

tion shots of a larger scale model rocking back and forth on a motion platform as water shot out of a firehose to simulate waves crashing over the deck. "To add to the realism of the model, Mark added some swinging lanterns to the deck, but it's so dark you can't tell whether there are any people on the deck or not."

Originally, CFC had planned to contribute about 50 effects shots to Frankenstein, largely consisting of the showier effects for the creation scenes and

"... [director] Ken Branagh, who also plays Dr. Frankenstein, wanted to be right in the middle of all of this ferocious sparking. The equipment was lethal, and if the electricity had hit any of the actors, it would have been all over."

the exciting shots of the *Alexander Nevsky's* iceberg encounter. All that changed after director Branagh got a look at the North Pole footage shot on Shepperton Studios' H stage. "[Shepperton] is a far cry from the North Pole," Watts notes. "They just shot the stage set against black, with no real background, so we took that footage, desaturated it, added a lot of mist and replaced all the black spots with sky and bits of iceberg. That amounted to half of the first reel and all of the last reel, which added about 90 more shots and lengthened the schedule quite a bit! A lot of the shots were moving, which made it difficult to add CG backgrounds because the perspective was constantly shifting. To further complicate matters, many of the shots that looked like lock-offs actually had subtle camera moves to add a little life to them, so we had to track backgrounds to the movements of those plates as well."

Another last-minute addition to the production schedule was a scene that was supposed to take place in Mont Blanc, Swit-

zerland. "That was actually shot at Virginia Water, which is a lake just outside of London," Watts remarks. "Since there are no mountains in England, Mark Nelmes pinched a mountain from another sequence in the movie and put it over the lake. He pulled a matte from the sky, which is where the mountain would go, and put the mountain in there, but the real challenge was making its reflection ripple in the water. First, he took that same matte and flipped it around 180

degrees so the mountain was reflected in the water. The problem was that we had rippling water with a static image of a mountain reflected in it. He had to determine the char-

acteristic ripple of the water and match to that. Mark used some match-distortion software we wrote, which allowed him to wobble the synthetic image of the mountain in sync with the real trees reflected in the water. He essentially animated over the surface of the water until he created a rippling movement that matched, then applied that to the image of the mountain and composited them together. That shot came out really well."

After handling the problems presented by the film's 140 visual effects shots, CFC is well-prepared to tackle *Mary Reilly*, next year's reinvention of *The Strange Case of Dr. Jekyll and Mr. Hyde*. "Our job on this film was not so much providing visual effects that looked strongly like visual effects; most of what we did was to extend the range of what Ken Branagh was able to capture on film. I think we succeeded." ❧



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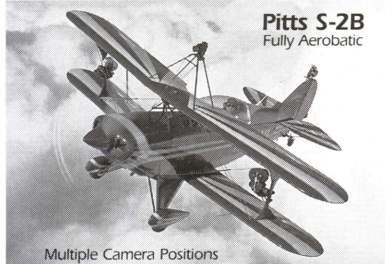


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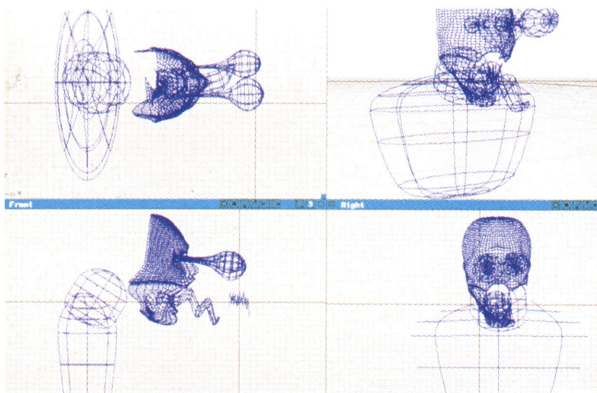
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# ILM Magic is Organized Mayhem

Another dazzling display of effects artistry for cartoonish comedy romp *The Mask*.

by Ron Magid



Photos courtesy of New Line Cinema

In recent years, Industrial Light & Magic had been seeking scripts featuring characters who could stretch and distort themselves in fantastic ways. *The Mask*, a story about an unlikely superhero who's a walking compendium of gags from old Warner Bros.' cartoons, shaped up as the ideal vehicle. The film stars Jim Carrey, whose rubberband physicality provided the perfect canvas for ILM's "digital prosthetics," which extended his performance above and beyond any contortions he could execute with his

own body.

Clint Goldman and Scott Squires, the film's visual effects producer and supervisor, were immediately attracted by the film's blend of Tex Avery-style cartoons and live action. "The script had a lot of interesting effects challenges for computer graphics (CG)," Goldman observes, "and we had the opportunity to use those techniques in this wacky, wild, weird, comedic, fun show."

Goldman and Squires initially consulted with resident

ILM effects veteran Ken Ralston (whose credits include the *Back to the Future* films, *Death Becomes Her*, and *Forrest Gump*). "Our art department was involved in shaping and determining what the Mask prosthetic makeup worn by Jim Carrey would look like," Goldman recalls. "They worked on the original design in the computer using Photoshop. We gave those designs to Greg Cannom, who further designed, then built, the actual makeup pieces (see sidebar)."

Goldman and associate







visual effects producer Chris Kubisch intended to involve ILM effects artists with classical animation and CG skills to bring the Mask's mindbending effects to the screen. The effects producers initially added Stefen Fangmeier as visual effects co-supervisor, but when Fangmeier was drafted by the producers of *Casper*, Squires was left to helm *The Mask* solo. Squires had previously supervised *The Hunt for Red October*, and he had also served as a technical director on the cel animation/live-action breakthrough

project *Who Framed Roger Rabbit?* — under visual effects supervisor Ken Ralston.

As *The Mask* began rehearsing along that fine line between animation and reality, Squires' CG animators fought against making their effects too stylized — for fear they'd become unbelievable — while simultaneously pushing the limit to ensure that their shots would be exciting enough. "The biggest risk was getting that photo-realistic cartoon look correct," Squires observes. "If we got ev-

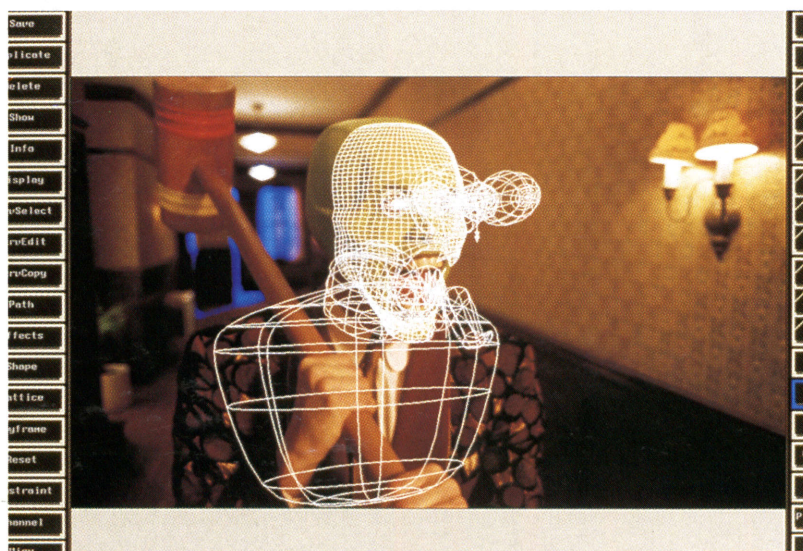
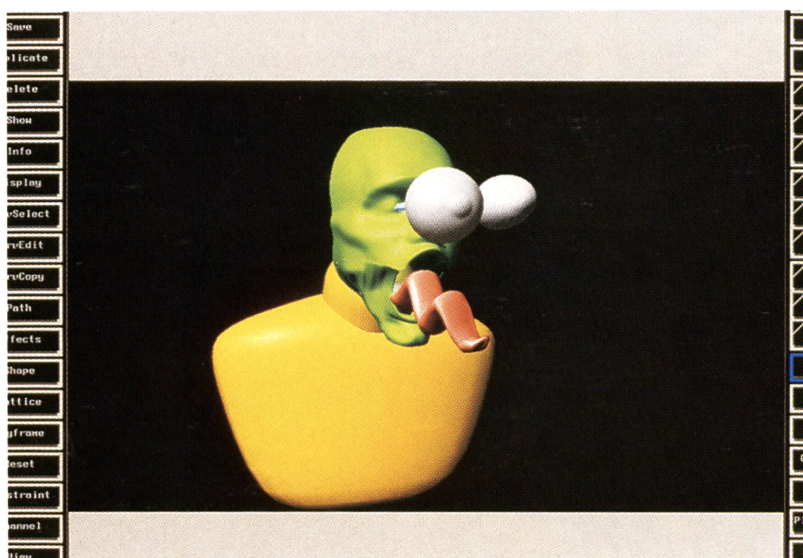
ery detail in there, it'd look grotesque when the Mask did certain types of action, but if we kept it simple, it would look too cartoonish."

No one felt that struggle between cartoons and reality more keenly than animation supervisor Steve "Spaz" Williams (of *Jurassic Park* renown). A walking encyclopedia of animation, Williams screened everything from classic Warner Bros. cartoons to *Ren and Stimpy* for his animators. "The trick was to send them back to their machines

**Opposite:** Preliminary wireframes of the Mask in action. **This page:** A lovestruck Mask (Jim Carrey) feels the beat of his CG heart.



This page, top to bottom: A background plate with a mallet-wielding Carrey; a wireframe composited over the plate; rendered animation of the Mask's bulging eyes and unfurling tongue. Opposite: The final composite.



happy whenever possible," he laughs. "There were certain people who wanted to apply a realistic visual effects approach to *The Mask*, but we were thirsty to make bulging eyes, jaw-drops and wolf-heads, so I pushed for exaggeration. Sometimes I won and sometimes I lost. To me, it was applied insanity. Director Chuck Russell's script had a lot of cornball gags which had their basis in Avery's work, but Avery wouldn't have done them that way; he would've done something far more twisted. You'd have to be a cartoon buff to know how he pulled it off, but we got to the point where Russell allowed us to change cuts to tell a joke a little better. When we did get away with it, I think it blew Russell away because the effects weren't supposed to be that extreme."

Some of the most extreme effects in the film occur when Carrey, as mild-mannered bank teller Stanley Ipkiss, slips on the magical mask of the title, which changes his life forever as his cartoon fantasies become reality. Each time Ipkiss dons the ancient wooden mask, a glow pierces through the wood and tentacles shoot out, enclosing his head. Ipkiss is then engulfed in a whirling tornado and emerges as the Mask. Before ILM could animate the transformation process, the mask prop and a bust of Carrey in Cannon's prosthetic makeup had to be scanned into their computers. Then ILM designed and built 3-D computer models, whose capabilities far exceeded traditional 2-D morphs, over Carrey's features.

In the original background plate, which was shot on a stage, Squires had Carrey go through the motion of putting the mask on twice — first with the prop in his hands, then empty-handed. "That way, we could use the hard mask as a reference without being limited by its position, which was important since it had to transform and change so much," Squires explains.





Animating the tentacles that emerged as the hard mask wrapped around Carrey's head required the CG artists to work with software that could deal with flexible and rigid objects simultaneously, which necessitated some preplanning. "In building and designing the models themselves," Squires says, "our CG people had to think through what each part of the mask was going to do and build that capability into it."

CG supervisors Jim Mitchell, Ellen Poon and Sandra Ford Karpman not only thought through the building of the film's CG models, they also determined the best approach for each shot. "We're the make-it-work people," smiles Karpman, who began her tenure at ILM as a janitor while majoring in math in college. Dennis Muren, ASC recognized her potential, and the would-be mathematician is now a veteran of numerous ILM shows. "The three of us were hands-on supervisors, so in addition to supervising our sequences, we each did the work on specific shots. Jimmy supervised the tornado, mask-pull and whirlpool sequences; Ellen supervised the clock, hallway, window fall, Milo the dog, mask application and the park sequences; and I supervised the miscellaneous 3-D shots and all the 2-D. I was fortunate to be involved with Jimmy's and Ellen's shots as well, because of their 2-D needs."

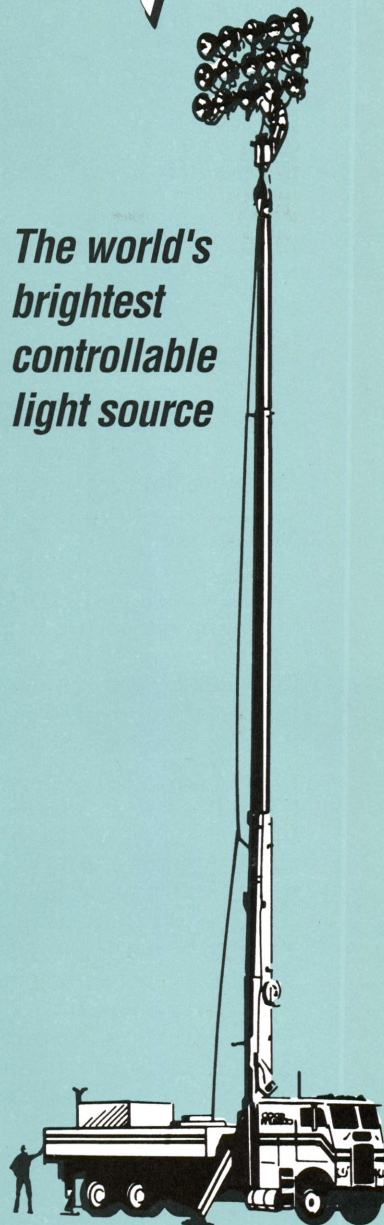
One of Karpman's under-noticed chores was the elimination of the original film's background footage once the 3-D CG effect was applied. Thus, when the Milo CG head was on the dog, any of the original dog's head not hidden by the CG head had to be removed — ditto for Carrey's head. Since there were no motion-control shots to make clean plate replacement easy, Karpman and her crew had to find other ways to do the job. "You don't always have the time to hand-paint every frame," Karpman says. "Sometimes you have to find shortcuts."

The plates of the 3-D CG mask involved a camera move and focus pulls, which made life difficult when it came time to paint out strands of Carrey's hair that escaped from under the mask. Jack Mongovan got around this problem by creating a clean frame of the background plate, matching the camera move and focus pulls, and then rotoscoping the parts of Carrey they wanted to keep into the new clean plate. To keep the plate from looking dead, the team then added choreography of the dresser moving as Carrey bumps into it.

Once the mask has fastened around his head, Carrey spins into a Tasmanian Devil-type tornado, which was actually a CG model animated in the computer and tied into some on-set practical effects. "We had the

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*A facelift even Beverly Hills would hesitate to endure: Stanley Ipkiss wrenches the suction-like mask from his head. In lower photo, note the subtle addition of stretching skin and glowing highlights.*



camera moving backwards, supposedly following this whirlwind through Stanley's apartment," Squires says. "We did a rough choreography of the tornado's path, and the mechanical effects guys rigged certain things to fall over." The camera was then locked off, and Carrey was rotated into the scene wearing Greg Cannom's bald, green-skinned Mask makeup.

When that plate was brought back to ILM, CG supervisor Jim Mitchell figured out the best approach to the tornado effect. "We looked at footage of actual tornados, as well as the Tasmanian Devil cartoons," he recalls. "Typically, CG is a very solid, hard-edged medium, but this was supposed to be dust and smoke spinning around. It had to have a translucent quality so we could see the room behind it, and a core that was somewhat solid but not strictly defined so you'd realize that something human was motivating it from within. We filmed Carrey against bluescreen to place him in the core, but we ended up mapping that texture onto our CG model so that the image of Carrey would streak out when it started spinning. Chris Armstrong, one of the people who animated the tornado, really brought life to it and gave the tornado some human qualities."

Once the finished tornado was ready to be composited, the last few frames of



Carrey spinning to a stop in the original plate were sped up a bit in the computer to make the transition from the vortex to the Mask seamless.

When the tornado stops, Carrey emerges as the Mask — but he doesn't remain in that incarnation for long before he realizes he's a cartoon character in human form. His first foray as the Mask is an encounter with a lady wearing a green mudpack, which so terrifies Ipkiss that his eyes shoot out if his head, the orbs spinning as his tongue unfurls in horror. "Jim Carrey is such a character, sometimes people think we're creating effects when we're not, but when he goes to his extreme, we just push that a bit further," Squires grins. "In this case, we transitioned from Jim's head to our CG head. We made him look cartoonish by exaggerating the size of his eyes

and expressions, but we rendered those images realistically."

After this encounter, the Mask bounces off walls on his way down a hall and out a window — a CG effect ILM mapped into the shot using footage of Carrey shot against bluescreen and on-set. "We used that footage to create a simple egg-shape with Carrey's characteristics, then animated that bouncing around," Squires says. "Originally, we had planned to have quite a bit of compression and stretch going on as he bounced off the walls, but

the director wanted us to back off that to make sure it stayed realistic."

After the Mask bounces out the window, he falls screaming straight toward the camera, which is engulfed by his mouth. The effect was achieved using a number of practical and CG effects. The original photography of the fall was shot at Warner Bros., where a stunt double wearing the Mask makeup was dropped toward camera on a decelerator rig. After that shot was scanned into ILM's computers, ILM not only sped up the last frames as the camera zoomed toward Ipkiss' mouth, they actually matted Carrey's face over the stuntman's for that final closeup. The final move into his mouth was also computer-generated, but it had to match exactly. Lastly, the entire effect was composited into a low-angle



background plate of Ip-kiss' apartment building as he dropped toward camera.

But the effects in this amazing sequence don't stop there. The Mask hits the sidewalk spread-eagled, flattening out as cracks form in the pavement. Then the camera tilts up, following the flattened Mask as he picks himself up, shaking himself out into three-dimensions. The first part of the effect was filmed on location, where a stuntman dressed as the Mask fell face-first onto a mat. Later, in CG, Carolyn Rendu added cracks to the pavement while animator Kyle Balda transitioned from stuntman to "flatman." Balda opted to animate the transition in reverse, figuring it was easier to fatten a flat model than flatten a three-dimensional one. "Kyle built the geometry flat, then gave it volume," Karpman explains. "When it's run in the correct order, you see a fat CG guy who goes flat over five or six frames. I also helped that along by adding some motion blur to the stuntman's fall. Additionally, I added camera shake when he hit the pavement; the shake created a 'boom!' to hide the transition to the CG guy."

After the crash, the camera was to follow the flattened Mask as he got up. The effects team shot a clean plate of the empty pavement where the Mask had crashed; the camera then tilted up, and when it stopped, Jim Carrey stepped into the shot and mimed shaking himself out. "To create the flattened Mask," Squires explains, "we experimented a bit and wound up shooting Jim Carrey with his arms outstretched against blue-screen. We then mapped that image onto the front and back of our CG flatman, adding mouth motion and other things. The 'shaking out' movement was a very challenging bit of animation because we had to get everything working in context. It was very time-consuming."

Balda used the same ani-

mation approach to transition from the flatman to the full-volume Jim Carrey. Karpman explains, "He flicked the geometry around so the character ballooned up quite a bit for 12 frames, then ballooned back down and transitioned to the real Jim Carrey. Basically, he just inflated the flatman and added a bit of volume to it. The things that kill us with transitions like these are luminance changes and position changes, so our CG guy had to line up perfectly with Jim Carrey."

Typically, shots like those just described would have both an animator and a technical director working together to ensure that the look and rendering are correct. Such was the case on virtually all of ILM's 80-plus effects, a good number of which involved the title character's cartoon antics. For example, when the Mask sees a beautiful girl in a nightclub, his jaw drops onto a table, his tongue curls out, his head transforms into a wolf's head and his heart pounds lustfully through his shirt. Rather than using clichéd morph technology, the transformations were accomplished by using CG to blend from Carrey's face to three-dimensional animation. "The morph is a two-dimensional process, but we tried to do most of this in a 3-D environment," Squires says. "A typical morph blends from one picture to another picture, but we actually ended up replacing Carrey's head with our CG head, then creating the multiple shapes leading to the wolf's head in the CG realm as three-dimensional animation, not as a flat image."

What that means is that a CG wireframe had to be built over Carrey's features in the computer, animated over several frames into a wolf's head, then rendered with photorealistic textures, highlights and shadows to blend seamlessly into the scene. The same process was necessary to create the effect of the Mask's heart pounding through his shirt,

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**After donning the mask, Ipikiss' pet pooch undergoes a cartoonish transformation.**

tethered to his chest by a thin stalk. Squire relates, "We shot Jim on-set, created the three-dimensional pounding-heart wireframe in the computer, then mapped his actual shirt onto that wireframe model so the buttons would pop out with each heartbeat."

ILM also did some wild work for a scene in which Carrey pulls an arsenal of guns out of his coat pockets, à la Yosemite Sam.

First, Carrey mimed the action of whipping the guns out in a number of different takes. Taking advantage of the fact that the action was to last only a few frames, Squires' crew planned an explosion of guns. "When we generated the guns, we made sure they looked real, but they were also very foreshortened by a wide-angle lens, so it was like guns-in-your-face," Squires says. "Carrey's hands were at his sides, and as he whipped out the guns, we just scaled them up so the guns formed right in his hands. The guns had ribbons of bullets shooting out of them, and as the bad guys ran away, little 'Bang!' flags unfurled from the gun barrels. Getting those things to whip around correctly was a challenging animation effect."

Even Ipikiss' dog, Milo, puts on the mask at one point, so ILM grafted a CG head onto the animal. Though the effect was similar to what happened to Carrey when he donned the mask, the shot was complicated by the fact that the director kept changing the type of dog he wanted to use. This made it difficult to plan what the dog would look like with the mask on. Unlike the actors who put on the mask, the dog was not to wear a prosthetic mask at any point. Once the dog, a 'Spuds MacKenzie'-esque breed, was se-

lected, ILM tracked his actions and matched their animation to them. Without modeling each hair, as they had for Kitty in *The Flintstones*, ILM's wizards tried to give the masked Milo a certain amount of fur texture. More importantly, they wanted to get as much personality out of the dog as possible. "Again, we wanted the CG head to look real but cartoonish," Squires recalls. "We



wanted it to make certain expressions that you don't get from a real dog."

When it came time for Ipikiss to remove his mask, he found it to be a much more difficult — and painful — endeavor than putting it on. The mask just doesn't want to come off. Seemingly bonded to his face, the mask stretches and pulls on his flesh as he struggles to remove it, mirroring Ipikiss' frantic facial expressions. "We used the idea that the mask has a life of its own," says Jim Mitchell, who supervised the computer graphics on these shots. "When Stanley pulls it off, it still retains a bit of life which dies away as it gets further away from him. Finally, it reverts to the plain old wooden mask."

The mask-removal scenes required a blend of several techniques. "First, we did more of a two-dimensional effect where he's taking the practical mask prop off; we distorted that image," Squires says. "Second, we matched in a three-dimensional CG mask to a plate of Carrey miming the motion of pulling it off, which we changed

into the hard mask as he pulls it off."

To make Ipikiss' skin stretch, then snap back like miniature window blinds as he finally gets the mask off, "We used a 3-D morphing technique like the one we created for *Terminator 2*," Mitchell explains. "We created a CG wireframe of Carrey's face, then tracked Carrey's face onto our 3-D wireframe without disturbing the CG element. Once we projected his facial texture over our wireframe, we then animated it and the texture stretched along with it, which created the illusion that the mask was pulling his skin. Carrey's face was already lit in the plate, and when we lit our CG element, it conflicted with the lighting and shading that existed in the original photography. The trick was to blend the two."

ILM had struggled with the "cartoon versus live action" issue on *The Flintstones*, but the ambitious gags in *The Mask* forced the effects house to tackle it head-on. There was actually a great deal of risk in attempting something as daring as *The Mask*. "It's one thing to put a dinosaur on a road for *Jurassic Park*," Mitchell observes, "but when you have to tie a CG element to a plate and track it and make it stick to an actor's face, it presents its own problems. To me, we've been CG makeup artists on most of this movie, exaggerating Carrey's face and stretching it around."

Given the successful results, it's hard to imagine that ILM's experts ever really feared that they would fall flat on their faces. But the amazing effects could easily have looked hokey. "In the end, we felt it was all workable," Squires says with relief. "We were able to utilize some of the tools from *Jurassic Park* in a different manner to create a film that was a total departure."





*The villainous Dorian is transformed amid spiralling violet clouds. The effect was accomplished via the use of a cloud tank, a large water-filled aquarium into which colored dyes are injected. After the tank effect was photographed, the footage was matted around the actor.*

## Dream Quest Adds Lunatic Fringes

Special touches heighten comedy's cartoonish edge.

by Ron Magid

While ILM handled the bulk of the effects work for *The Mask* — establishing the scope of the film via matte paintings and bringing the Tex Avery-style antics of cartoonish protagonist Stanley Ipkiss to life — another 40 effects shots were handed off to Dream Quest Images. Following the direction of visual effects supervisor Jon Farhat, Dream Quest's team cleaned up certain practical effects requiring wire removal and, more importantly, effected the demonic transmutation of the Mask's arch-nemesis, the evil Dorian.

Just as the wacky silliness of Ipkiss' transformation reflects his inner character of a fun-

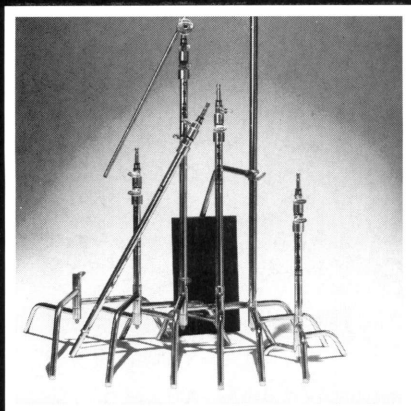
loving guy raised on cartoons, Dorian's transformation reflects his dark malevolence. When the villain puts on the mask, his metamorphosis is accompanied by elaborate spiralling violet clouds which circle and then constrict around him. Lightning flashes, wind blows and the clouds tighten, drawing Dorian up into a little ball. Then Dorian begins to grow, and the clouds follow him up, encircling his head as he inhales the last wisps through his nose.

Director Chuck Russell emphatically refused to use computer graphics effects or more traditional downshooter animation to create Dorian's cloudy

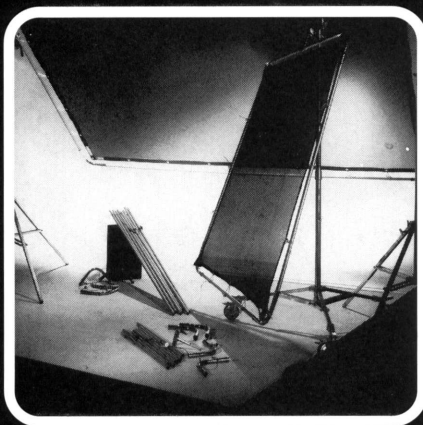
vortex. He instead asked Farhat to utilize some of the most elaborate cloud tank effects in recent memory. A cloud tank resembles a large aquarium filled with water, into which colored dyes are injected; as the dyes billow, an effects camera photographs the action. The image is later isolated and matted into a sky or, in this case, around a person. Many of the roiling cloud effects in *Close Encounters of the Third Kind* and *Raiders of the Lost Ark* were created in this way. But *The Mask* required something even more specialized than those effects extravaganzas: the clouds had to spiral around the villain's body. Dream Quest's Gary Platek built



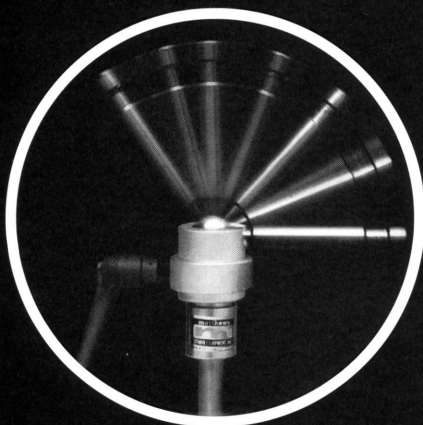
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a special cloud tank with ink jets positioned in such a way that they actually spiralled the dye cloud down into the tank.

Once Dream Quest licked the problem of getting the dye to spiral in the water, another challenge loomed: the speed of the effect. In order for the cloud to billow properly, it had to move six times slower than Farhat and Russell intended. Farhat's solution was ingenious: "We allowed the cloud tank effect to move extremely slowly, but then we scanned everything into the computer and digitally time-compressed it. The cloud appeared to grow very quickly, but still had that billowy quality. It only took a week to shoot the cloud tank element, but the next couple months were spent manipulating and altering that element digitally. The folks who shot it on stage are going to be quite shocked when they see exactly what happened to it!"

When Dorian emerges from the purple cloud, Stanley Ipikiss finds himself facing an evil that is his opposite in every respect. While Stanley is slim, bald and has pearly white teeth, Dorian has a thick neck, a brown pompadour and cruddy dentures. Dorian's eyes also have an unpleasant way of glowing from within whenever he gets angry, sometimes for entire scenes. Farhat used a combination of CG and conventional optical effects to add the fire to Dorian's stare. "First we had to scan all of this footage of the Dorian character moving and jumping all over the place," he laughs. "Then we had to track his eyes for every single frame and apply this effect to it!"

One of the most elaborate Dorian sequences — wherein the villain is shot several times, only to suck the bullets inside his wounds and then spit them out of his mouth like a machine gun — was a cooperative effort between ILM and Dream Quest. The original plate photography only showed the bullets hitting Dorian in the chest. Dream Quest's task

was to remove the bullet hits over time, then apply a CG effect in which the bullet is suctioned from inside, pulling the shirt in and leaving a white untouched shirt on the surface. "We see the blood disappearing and the bullet hole dwindling into a little cone shape as the shirt is sucked in," Farhat explains. "The next shot, in which he spits out the bullets, was done by ILM using CG bullets."

Dream Quest also handled an elaborate sequence in which Ipikiss, as the Mask, dodges bullets on the dance floor of the Cocobongo nightclub. As the bullets fly, the Mask spins into a tornado, emerging first as a matador with a cape; when he spins again, he becomes a Russian cossack dancer kicking his legs up in the air; during a third and final spin, he becomes Elvis Presley, swinging his hips to avoid the gunshots. During plate photography, Carrey would begin to spin in and out of each character, then Dream Quest would pick up where he left off using CG to animate him into a tornado. The transitions from character to character were created via CG whirlwind effects, which acted as cross-dissolves from one character to another. Since each tornado lasted just 15 frames, Dream Quest had the first six frames to get into the character, the last six frames to get out of the character, and three frames in the center to do something! "In the course of each of those tornados, the colors had to change and hook up," Farhat grins. "We'd blend from an image of Carrey wearing blue pants and a red shirt to him wearing black pants and white shirt."

Farhat credits Chuck Russell for envisioning the exciting effects potential inherent in *The Mask*. "Chuck did a marvelous job pulling things together," Farhat says. "He's the one who made this all happen. This is something that's going to be around for a long time. I think it's a classic."



# Making Strange Faces

An Oscar-winning makeup artist and his cohorts create surreal visages for hit comedy's characters.

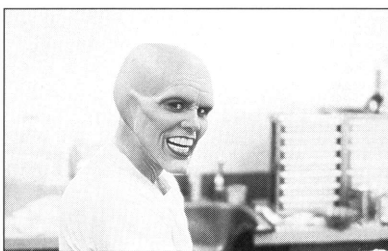
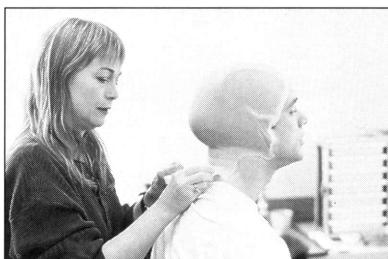
by Ron Magid

Greg Cannom, the Academy Award-winning makeup artist for *Bram Stoker's Dracula* and *Mrs. Doubtfire*, was first approached about bringing his transformative talents to *The Mask* during the calm before the digital storm that erupted with the release of *Jurassic Park*. Accordingly, the producers of *The Mask* wanted Cannom to devise mechanical makeup effects for virtually every shot in the film! After *Jurassic Park* arrived, however, most of those change-o effects were given to Industrial Light & Magic, a decision which Cannom couldn't fault. "It cut a lot of my effects," he says, "but it made the film much better. I'd rather do character makeup than build mechanical things which CGI can do better, and I still got to design Jim Carrey's makeup for the film, which is a great part of it."

As Cannom went to work, the film's director, Chuck Russell, told him not to match his design to that of the original comic book. Because of the film's tight production schedule, Cannom was already doing designs on another person's headcast before he'd even met Carrey. After roughing out the basic skull-shape, Cannom experimented with the comic design by adding small ears, which Russell and others connected with the production liked. But when Cannom finally met with Jim Carrey, the star nixed the ears, insisting that the design be as faithful as possible to the character as drawn! "After I took the ears off," Cannom admits, "I realized Jim was right: it worked better without them."

Once Cannom cast Carrey's features, he began the

design phase on the Mask character's makeup in earnest. Keeping both Russell's and Carrey's desires in mind, Cannom based the overall shape of The Mask's head on the comic book, while altering the face to work with, rather than submerge,



Carrey's expressive features. After Cannom designed the basic structures of the final makeup design, Glen

Hann began sculpting it on Carrey's life cast, fleshing out the Mask's exaggerated cheekbones

*Sheryl Ptack, who had previously worked with actor Jim Carrey on the television series In Living Color, applies a prosthetic headpiece, then adds finishing touches with makeup.*

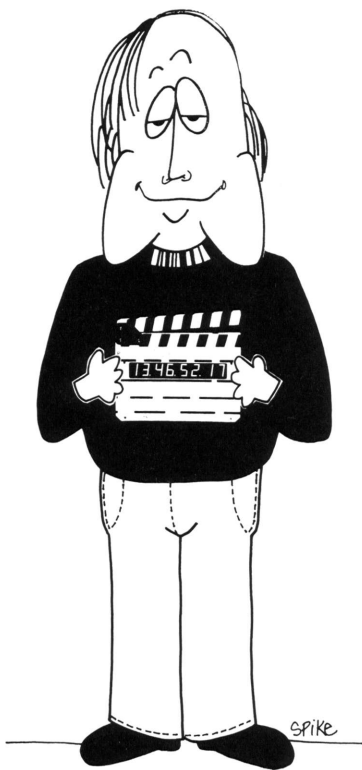
to alter the proportions of Carrey's face enough to cover his ears up. With Cannom's input, Hann came up with the idea to add an exaggerated chinpiece to balance the makeup. Cannom had Hann build up the bone structure around Carrey's eyes to make them look bigger and asked his mechanical engineer, Larry Odine, to create a set of oversized teeth to accentuate the size of the character's mouth. "His teeth, mouth and eyes had to appear much bigger to match the exaggerated bone structure," Cannom explains, "but what was really challenging was the fact that we were also trying, in a bizarre sense, to make him look very handsome."

Cannom notes that Carrey's amazingly expressive face caused him a bit of concern. "I was absolutely scared to death that when I put rubber on Jim's face, the makeup would buckle and wrinkle," Cannom admits. So as Hann sculpted the Mask's chin- and cheekpieces, Cannom had him avoid Carrey's mouth by half an inch all the way around. "During the design phase I made the decision that I wasn't going to put anything near Jim's mouth, because it would've been a disaster," he says. Cannom ran the edges of the cheek appliances just behind Carrey's nasal labial folds (those wrinkles that run from the nose to the outer edges of the mouth), and followed them down to his chin. He also added small character folds to accent the nasal labials to camouflage any buckling problems. There was very little danger that the chinpiece, which was very thick, would buckle.



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When Hann finished the sculpture, the makeup consisted of six appliances: a huge piece covered Carrey's hair and ears; a forehead piece covered his eyebrows and accentuated the bony line of his brow; and two overlapping side pieces built up the Mask's cheekbones and, along with the prominent chinpiece, created his jawline. But the sixth piece was the most problematic. Normally, Cannom would have shaved the hair on the back of Carrey's neck so the foam rubber headpiece could blend there, but Carrey's hair had to remain a certain length so he could play the Mask's alter-ego, Stanley Ipikiss, and still make appearances on the TV show *In Living Color*. Once again, Cannom was fearful that Carrey's rubbernecking might separate the huge foam headpiece from his neck. "For the sixth piece, I incorporated a very thin prosthetic that ran to about the collar line, blending in on the sides of his neck and along the back of the head appliance so you couldn't see the line of demarcation," Cannom says. "We tucked his hair up as much as we could in the back before gluing that piece down, and it worked very well."

When Cannom first applied the makeup to Carrey — on the Sunday before *The Mask* was to begin production — he realized what a tricky makeup he had devised for the title character: because every piece was designed to fit precisely into every other, if one piece was off by as little as  $\frac{1}{8}$ ", it threw the entire makeup out of whack. But Cannom did have a few pleasant surprises in store: "I was amazed at how well the makeup worked with Jim's mouth; it didn't buckle at all. And the neckpiece never tore loose."

Since the appliances secured to Carrey's face were PAX-painted in the bizarre lime-green color dictated by the comic book, Cannom colored Carrey's exposed skin using a matching rubber mask grease created specially for the film by Joe Blasco. At first,

Cannom shaded the hollows on the makeup, but once Sheryl Ptack, who did Carrey's makeup on *In Living Color*, took over applying the makeup every day, she lightened the shading, allowing the prosthetic's broad bone structure to create its own shadows so it wouldn't look too menacing.

For the Mask's arch-nemesis, Dorian, Cannom devised a purposefully overdone makeup based on a design Russell had given him. Dorian's oversized prosthetics oozed nastiness from every line. Cannom was fortunate to be able to build his sinister creation over actor Peter Greene, who is blessed with large eyes and remarkable bone structure which Cannom exaggerated into an evil caricature of the actor. After Hann finished the sculpture, Cannom made a few changes and the makeup was ready to go.

The masked Dorian's most distinguishing characteristics are his massive neck, bulging with veins, and a large head topped, at the insistence of director Chuck Russell, by a brown pompadour. Eight appliances completed Greene's transformation, including the neckpiece, the back of the head, two cheekpieces, a pair of prosthetic lips, the brow and the chin. Dorian was also an entirely different shade of green and had a lot more shading than the Mask himself. "The Dorian makeup was like the Mask makeup gone mad!" Cannom laughs. "We went more cartoony with his makeup, and turned him into this really scary thing in the end."

Cannom is pleased to have been able to bring his own unique style to *The Mask*: "When I work on films, I do what I think is interesting or will scare me; hopefully, the director and actors like it too. It was really fun to do the Stanley and Dorian makeups. I knew when I read the script and heard that ILM was doing the effects, it would be a killer film that would blow everybody away." ❧



# The Pterodactyl Woman of Beverly Hills Takes Wing

Effects expert Scott Billups uses affordable methods on fantastic farce.

by Ron Magid

The leading contender in this year's sublime-to-the-ridiculous department is director Phillippe Mora's *The Pterodactyl Woman of Beverly Hills*, whose entire negative cost is probably exceeded by the effects budget of any film currently mentioned in these pages. The film's visual effects supervisor is Scott Billups (*The Fantastic Four*), who, with his wife, Hisako, comprises the entire department. No wonder Billups (who began his career as a cinematographer interning with the great James Wong Howe, ASC and who set up AFI's media lab) takes great delight in demystifying special effects.

Most of *Pterodactyl Woman*'s 15 effects shots dealt with actress Beverly D'Angelo's transformations into the title character. Interestingly, Billups handled the original effects previsualizations for *Jurassic Park*, and notes that a pterodactyl sequence was cut from that multi-million-dollar film because the creatures were too difficult and expensive to articulate. "So here we are doing a movie for a tenth of the budget or less," he laughs, "and there's no way we can get away with anything less than *Jurassic Park* quality because it'd look like a stop-motion effect by comparison."

Billups based his CG effects on 3-D scans of D'Angelo and a pterodactyl sculpture created by the Chiodo Brothers' effects house. "Look for the best modelmakers you can afford," he advises. "The Chiodos made us a great pterodactyl. We boned it, made a skeleton, and then built a wireframe over that and flapped



it around. We studied the movement of bats and albatrosses; I figured a pterodactyl was somewhere in between. I partly used the Chiodo's texture, but," he adds conspiratorially, "the secret to the best lizard skin textures for CG is tripe, the lining of a cow's stomach; just cast it, pour it up, paint it and scan it in!"

Using the scans of the Chiodo Brothers' pterodactyl as his null position, Billups employed CG to integrate D'Angelo's amusing transformation into the scene without resorting to the usual morph tricks. "I really can't stand traditional morphs," Billups admits. "They're really just 2-D effects pushing pixels around trying to look 3-D. Whenever you see a morph, the character stops, changes, and then moves again. We've all been there, done that, seen that. Beverly watched all the bad monster movies we could get her, as well as footage of ostriches, and she came up with her own movements for the character. As

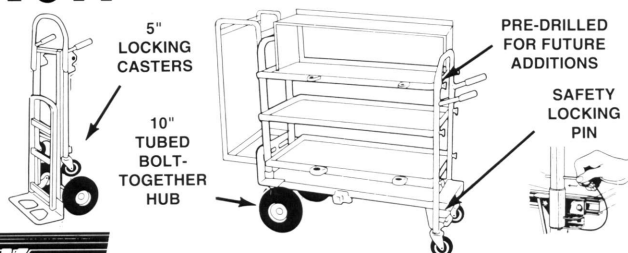
Beverly changes into a pterodactyl, she's moving, turning her head from side to side, and the change is sporadic. As she's moving her head back and forth, she's going in and out of being a pterodactyl, so it's a totally integrated part of the scene. Then she sneezes, and her nose suddenly shoots out and becomes a pterodactyl beak!"

Once D'Angelo's transformation is complete, she causes panic as she flies over the streets of Beverly Hills, and a Stealth bomber is dispatched to bring the prehistoric beast to the ground. Billups used a number of techniques to create the detailed background plate of the buildings of Century City and Westwood: "I went up in a helicopter and shot the city with a 16mm Nikon lens. Then I scanned that big plate into my computer, took it apart and layered it so it had depth. The mountains in the background were one layer, and I extended them down so I could get a certain amount of



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perspective shift as the Stealth fighter and the pterodactyl flew by; I had the city in the foreground in a big semicircle. Then I went up on a rooftop and shot various buildings with motion-control and pasted them in frame by frame. That process was tedious, but it looks great. Lastly, I added little movies in the buildings' windows of people watching the plane as some of the windows blow out and some papers fly away."

Billups shot the actor playing the pilot of the Stealth bomber against bluescreen, then mapped that film onto a semi-circular piece of geometry behind the windshield using his computer. "I made a little polygon movie and put it in the cockpit," he explains. "We started in tight on the pilot's face, then zoomed out to see the entire Stealth fighter, which takes a hard bank as we follow it down and the pterodactyl flies across."

The Stealth bomber itself was a CG model whose geometry Billups purchased from the Viewpoint Datalog. "The Viewpoint Datalog is the deep dark secret of special effects and the key to future production," Billups grins. "You select the model you want from their catalog and call them up, they modem you the incscription, the model downloads from a CD and they bill your account. There are people being charged \$50,000 to \$60,000 for a model that some effects house bought for a few hundred. My Stealth fighter was 400 bucks. Once I downloaded the geometry into my computer, all I had to do was add good texture maps, but that's the art. The model's the technology, which you can buy, but the art is what makes it believable or bad."

Asked about his cheerful demythification of visual effects, Billups laughs: "I can't afford to mythologize it. That was the whole purpose behind setting up AFI's media lab. Technology doesn't replace methodology; you need to be competent in both."



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# Peering Behind Cameron's New Curtain

Digital Domain gets off to a running start by providing stunning effects for *True Lies*, directed by company co-founder James Cameron.

by Ron Magid

If you were starting up a major visual effects house built entirely on the powerful new technologies of the digital era, the last director you'd want as your first client would be tech-savvy James Cameron. But since Cameron was one of Digital Domain's founding fathers, CEO Scott Ross and senior VP Brooke Breton had to transform an effects-powerhouse-wannabe into the real article — and quickly. The demanding Cameron was waiting, with his next production

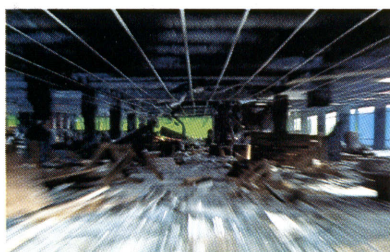
just weeks from shooting. So as Cameron developed the effects gags for *True Lies*, his bombastic blend of James Bond homage and domestic comedy, Ross and Breton scurried from one Los Angeles warehouse to another hoping to find a space majestic enough to house Digital Domain.

Their efforts were rewarded with an industrial shell vacated by another media powerhouse, the advertising firm Chiat-Day. Assuming occupancy of the humongous space in August

1993, Ross and Breton quickly set to work retrofitting the former advertising agency with the latest equipment and workstations and hiring top-notch effects artists. "It was my responsibility to put together the editorial, model, stage and camera departments and staff up *True Lies* and *Interview with the Vampire*," Breton says, making no mention of the fact that she somehow managed to have a baby as Digital Domain was experiencing its own birth pangs.



This series of elements from Digital Domain deconstructs the sequence in which the villainous Aziz (Art Malik) takes an E-ticket ride on a Sidewinder missile.



Film Clips courtesy of Digital Domain



Inevitably, as any new company does, the effects house hit snags, and wisely chose to job out some of *True Lies*' effects needs. "When the number of shots we were originally slated to do jumped from 65 to 105," Breton says, "we decided that the best way to concentrate on the work at hand was to farm out about 15 effects. We carefully selected shots from distinct parts of the film so we wouldn't be intercutting our effects with someone else's. The sad thing is that we really could have done those shots. At the time, though, it was a much chancier situation. Lots of effects houses farm work out, but we're under the microscope because people want to see if we'll perform."

Ironically, very little digital work was involved in Digital Domain's effects for *True Lies*, which used megatons of live-action gags to realize its high-powered *Spy vs. Spy* spectacle. If the magic of visual effects is to create seemingly honest images using various cheats, then *True Lies* is the most aptly named effects film ever. Thanks to visual effects supervisor John Bruno and Digital Domain, no image in the film is truly quite what it appears to be.

Like *Forrest Gump*, which also uses visual effects to recreate, rather than alter, reality, *True Lies* achieves a level of believability unprecedented in films with hundreds of effects shots. That both films' effects are so successful is due to the lengthy association directors Robert Zemeckis and James Cameron enjoy with visual effects supervisors Ken Ralston and John Bruno, respectively. John Bruno first teamed up with Cameron eight years ago when the director was planning *The Abyss*, for which Bruno won an Academy Award (he was also nominated for his work on *Poltergeist II* and *Ghostbusters*), and has served Cameron on every film since. While ILM's Dennis Muren actually supervised *Terminator 2*, it was Bruno who initially visual-

ized the robot shape-shifter before leaving the project to direct a film that never materialized.

After his directing gig fell through, Bruno returned to his former home base, Boss Film, where he supervised several sequences for *Batman Returns* and co-supervised *Cliffhanger*'s effects (netting him two more Academy Award nominations). During

**If the magic of visual effects is to create seemingly honest images using various cheats, then *True Lies* is the most aptly named effects film ever.**

that time, Cameron put his multipicture Lightstorm deal together at 20th Century Fox, and *True Lies* quickly emerged as the premier project. "Jim wanted to work the same way we had on *The Abyss*," Bruno recalls. "Based on his story treatment, we'd begin 'plussing' things on paper, expanding gags, coming up with scenes we'd like to see and at the same time keeping it as realistic as possible."

On paper, Cameron and Bruno expanded the film's climax to include a terrorist leaping on the back of a Harrier jet, engaging Arnold in a knife fight, then being fired away on a missile which plunges through a building and destroys an enemy helicopter. *True Lies*' budget mushroomed. "Jim said, 'I'm also the producer on this film, and the effects are starting to cost too much,'" Bruno recalls. "He asked me to look for ways to bring the cost down." Their first step was to secure the Marines' full cooperation with the project by convincing them that Arnold battling a terrorist atop a Harrier over downtown Miami would be good P.R.! "The main thing they wanted right off the bat was for us to make [the shots of] Arnold flying this Harrier look real," Bruno adds. "To the Marines, that meant enlistment, as *Top Gun* did for the Air Force."

So now Bruno not only

had James Cameron breathing down his neck, but the United States Marines! "If we hadn't gotten the Marines' cooperation, we would have had to do a lot of model shots, and it would have been a nightmare," Bruno admits. "After the jet sequence was storyboarded, Jim and I acted out each board on videotape using crude miniatures

and a toy Harrier. We then printed those shots out and reconfigured the storyboards to match them."

As they played

with their miniatures, Cameron and Bruno realized that the most critical image the audience had to "believe" was Arnold climbing into a jet and taking off. "It had to be totally real to prove that Arnold was indeed flying this jet. We had to sell that first effect beyond any doubt."

So in this digital age, what turned out to be the most expedient solution? "The first thing I thought of was marionetting a full-sized mockup of the jet on a crane, starting close on Arnold and pulling back to show the jet taking off," Bruno says. "We could easily take out cables with computers, and that way, the audience would always see Arnold flying the plane. Don Pennington, who built the subs for *The Abyss*, was my first choice to build the jet mockup, and he did a fine job."

One of the many keys to selling the jet shots was a convincing heat stream from the powerful engines along the fuselage. The way Bruno sees it, that wasn't just a nice touch, it was absolutely necessary given the context of the effect: "Arnold takes off in our Harrier mockup within three minutes of showing the real Harriers land, so we had to create the jet exhaust to lock the plane in. In addition to the practical wind and smoke in the original plate photography,



*The elements used to create the digital composite shot of Aziz' leap onto the back of the Harrier.*

which Doug Smith augmented with paper, leaf and smoke elements shot on our Digital Domain stage, one of our supervising animators, David Isyomin, came up with the basic digital heat and distortion look on the ground."

Locking all of these elements together into a seamlessly realistic shot was the job of visual effects postproduction supervisor Price Pethel. "Each shot had to have its own choreography for heat, which changed as the plane lifted off," Pethel recalls. "We characterized the heat

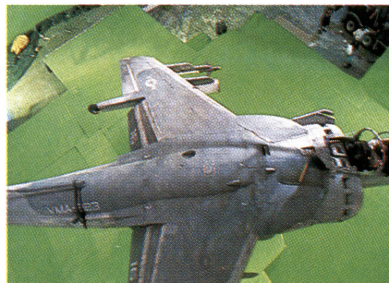
signature as a refracting or lensing agent which distorted the Harrier and the area around it, so it looked like a fuzzy blur around the wings from above and a wavy distortion emanating from two nozzles on the underbelly when seen from the side. We needed a whole animation team to create its characteristic shape as it moves away from the ground for each shot." Pethel also sampled, flopped and tracked the engine fanblade, shot when the real Harriers landed, into the mockup's Duvateen-draped intake to create the illusion of a real jet engine.

Having now successfully sold Arnold's initial takeoff and piloting of the Harrier, Bruno figured the production might as well amortize the cost of Don Pennington's lifesized jet mockup. The trick was deciding where else it could be used. Bruno's first stroke of genius was to employ the mockup for *True Lies'* signature shot of the Harrier rising outside the windows of the terrorists' office building base. "I was trying to cut the number of

composites and model shots," Bruno reminds us. "By hanging the full-sized jet from above on a crane in front of a TransLight backing of Miami, we could raise it quite easily on wires! That was tricky because we were shooting through glass, so we had to re-

involved 85 greenscreen composites at the time, would ever look 100 percent real. There were too many variations of technique. Suddenly it occurred to me that if we could put the whole jet on the roof, we could do practically the whole sequence in-camera, because we'd actually see the city in the background!"

A quick phone call to Michael Lantieri, who provided all the "dinosaur interfaces" for *Jurassic Park*, led Bruno to Mark Noel, who operated the motion-base systems that moved Stan Winston's life-sized dinosaurs. This



move the cables behind the glass, using a new software we developed called Whatwire, which took a while because of the ripple effect caused by the glass windows. We also used Whatwire to remove the annoying seams from the TransLight backing, which made a shot that wasn't supposed to be an effects shot an effects shot!"

Although that sequence failed to reduce the number of effects, it led Bruno to a stunning realization: "I looked at the storyboarded sequence in which Aziz gets hung up on a missile and thought, 'If I could take a section of the full-sized Harrier wing and missile up onto a Miami rooftop, we could see Aziz hanging on the missile, as well as the street below, and it would all be in-camera!' It would no longer be an effects shot. So that was the initial concept: we'd shoot the actor on a real wing on the roof and eliminate 'x' amount of shots. That would solve a lot of problems. I don't think any of us were convinced that the sequence, which

time, Bruno informed Noel that he'd be using the flight simulator for its intended purpose in connection with their Harrier jet mockup — except that it would be atop the Brickel Building, a skyscraper in the heart of downtown Miami! "We set the motion base with the jet on the Brickel Building's rooftop elevator housing," Bruno smiles, "which gave us total tilt-and-roll and a 45-degree downview of the entire city. We realized if we put a building at the horizon in our camera's crosshairs, we could lock off the background, then pan and dolly the camera around our Harrier mockup on the motion base. That way, the landscape would appear stationary while the jet appeared to be flying over Miami. This gave Jim total freedom to shoot the Harrier and the city in sunlight, in-camera, and eliminated about 50 composites."

Using this live-on-the-rooftop technique, Bruno was able to shoot almost every shot of the Harrier in the rescue sequence, from the moment Arnold



tells his daughter Dana (Eliza Dushku) to jump from the construction crane onto the jet. "The jet was supposed to be hovering with its nose pointing away from the building, and the crane was supposed to be swung out over the street, but you couldn't tell," Bruno says proudly. "All of the downshots of Art Malik and Eliza Dushku on the crane were done with the crane actually positioned over the roof; they were still wired for safety but all they had was a four-foot drop. The same was true when we were shooting Eliza on the nose of the Harrier — we were on top of the building, and we'd just aim the camera toward the horizon so you wouldn't see the roof."

Despite all of the safety precautions, there's always some danger when actors are riding on cranes and airplane mockups hundreds of feet over Miami. In this case, when the winds exceeded 25 knots, the rooftop crew had to cut the Harrier mockup and the big crane loose and let them windmill. "That happened a couple of times," Bruno reports, "so we had to engineer the placement of the crane and the jet so they'd clear each other as they went freewheeling like weathervanes." The jet was especially problematic. "Since it is an airplane," Bruno laughs, "if its nose got too high, it wanted to fly!"

Despite Bruno's success in reducing the number of composite shots, Cameron wanted more. He asked Bruno if he could eliminate the composites of the Harrier flying across the street towards the Brickel Building, and the wide downshots of the jet, which were to combine the on-stage greenscreen photography of the mockup with background plates shot by helicopter over Miami. "We started throwing ideas around," Bruno remembers. "When our boarded shots were finished, we figured the crane was going to take the jet out over the street anyway, so why not film our stunt-people actually

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# Cinesite Fills in the Gaps

Cinesite took part in the creation of some 23 shots in *True Lies*. In addition to using wire-removal and image-enhancement techniques, Cinesite's effects experts managed to "replace" a nonexistent section of Florida's Seven Mile Bridge. Additionally, the firm scanned and recorded 90 percent of the original negative live-action material shot for the film into the computer realm.

Brad Kuehn, an optical supervisor for seven years at ILM, served as Cinesite's visual effects supervisor on *True Lies*. Kuehn calls Cinesite the premier facility for scanning and recording, and makes his case by citing several instances of image-enrichment in *True Lies*: "By scanning in the full scale of the negative, we could move it in any direction we wanted. That enabled us to adjust color without getting into a noise problem or pixillation of the image, which helped correct certain overexposed images. After James Cameron saw some of the shots we corrected, he asked us to make some scenes look more saturated or more contrasty, like the shot in which the terrorist's van is teetering on the shattered end of the bridge. A pelican lands on the hood, causing the van to fall in the water. Jim felt the image was extremely flat because it was shot from outside the truck looking at the terrorists within, who were obscured by reflections from the windshield. After we removed the thick wires attached to the pelican, they asked if we could enhance the contrast to match the rich surrounding shots, which we did."

Cinesite also digitally removed a camera jet trailing one of the real Harriers as it descended on the Seven Mile Bridge. Then Cameron asked Kuehn to drop the Harrier two fields lower to get it closer to the bridge. "We painted out both jets, then repositioned the Harrier where Mr.

Cameron wanted it," Kuehn says. "Also, some of the aerial footage came out flat and overexposed, so we added a lot of contrast and saturation back in to give life to those shots."

Additionally, Cinesite was called upon to plug the "gap" in the Seven Mile Bridge. "Part of the bridge was out before it exploded," Kuehn explains. "We filled the gap in the bridge by sampling the real thing and using that to replace the missing section for a shot following one of the jets over the Causeway. We also enriched the color of that shot."

Of the 23 shots Cinesite worked on, Kuehn figures about 20 of them involved straight wire removals. "Except, with Mr. Cameron," he groans, "your wire removals have to be perfect!" The toughest of these were the three shots of Bill Paxton balancing on the edge of the Hansen Dam. "Since he was literally standing on that ledge, he wore a harness and was actually supported by three wires, two of which we could see clearly, along with their shadows, against the textured cement of the dam. Removing the wires themselves was really hard because they went in and out of light, so we had to be extremely consistent in how we replaced them. If we didn't sample continually from the same area, there'd have been flickering artifacts left behind where the wire had been. But we couldn't just draw a matte from the same area and move that matte into place because the camera was moving in every shot. Once we removed the wires, those shots were still tricky because it was difficult for our paint artists to nail the moiré-pattern texture of the cement. To get that right, they sampled the cement from the surrounding area, but they also had to do some freehand painting to match it in."

— R.M.

fighting on the plane and see the actual street below them?"

Bruno talked to special effects coordinator Thomas L. Fisher and the crane operator about the feasibility of hanging the Harrier mockup, with stunt people, above the streets of Miami. The jet mockup weighed a mere 6,000 pounds, while the crane was stressed for 10,000, but Fisher suggested doubling the cable to ensure plenty of safety margin. "Then I asked Joel Kramer, our stunt coordinator, if anyone would be interested in doing the same fight rehearsed on the roof out over the street with a helicopter circling," Bruno says, pausing for effect. "He said, 'Yeah, that'd be great!' We used as many harnesses and cables as we needed to keep the stunt people safely attached to the jet, then removed all of those wires in post, adding the heat signature later at Digital Domain. So when you see that jet flying across the street and hovering in front of that building, it looks real because it is real."

Of course, the rescue sequence still needed several shots for which Price Pethel had to combine greenscreen footage of the actors and the plane with moving helicopter footage from the streets of Miami. The characteristics of the green screen and the plane's reflective surface created some major problems for the stage crew. "We set up our full-sized Harrier mockup on the motion base, which we covered with a skirt of greenscreen material we actually suspended under the plane and extended out about 100 feet across," Pethel explains. "The problem was how to light the plane without seeing 50 instruments reflected in its canopy. You'll notice that we blew the canopy away very early in the sequence, before we got into most of these effects shots."

One extremely high-angle shot shows Aziz hugging the Harrier for dear life as Arnold spins the plane around. This shot typifies Pethel's compositing pro-



cess: "First we had a free-form background plate, probably shot by Jim Cameron from a helicopter moving laterally past the skyscraper, which perfectly matched the storyboard's angle and which had the energy we wanted. We also had a shot of our mockup on the motion base taken from a Technocrane mounted on a 30-foot Chapman crane, which gave us our God's-eye perspective. Unfortunately, it was a free-form move rather than a motion-controlled move. We had two unrelated camera moves, one in the original background plate and one in the greenscreen plate, going in opposite directions, and now we had to reconcile them! So the deal was to extract motion information from the helicopter background plate, which was shaking and buffeting, and apply that motion information to the rotating plane in the foreground, which was our greenscreen shot."

Pethel first used some software to sample two positions along the plane's rotating fuselage and extract the choreography. Pethel used that information as a tracking axis; by applying it to the background plate, he effectively imparted the foreground motion onto the background plate, enabling the background to rotate with the plane. But that was only half the battle. Conversely, Cameron wanted Pethel to also capture and apply the shaking information from the background plate to the plane, so that it would be buffeted up and down in sync with the background. "We extracted motion data from the foreground element and imparted it to the background, and vice-versa," Pethel smiles. "We had this complement of motions going on, which from our point of view was a kind of breakthrough. I've never done anything quite like it before."

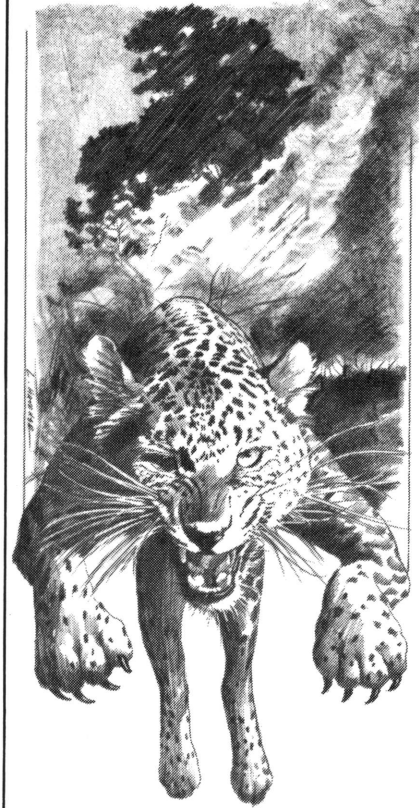
Cameron then asked Pethel if he could add further shake to the shot as though the cameraman had been hit on the side of the head. "If he was really

hanging out of the helicopter trying to get this shot, that's entirely likely," Pethel laughs. "It's not very pretty! For a lot of these shots, Jim wanted us to put that natural wild camera shake back in the composite, so we had to figure out how to add motion blur and make the shot really feel like it was all glued together. The problem was that we couldn't put motion blur on either element independently, because we had many different axes of motion. But when the shot was finished, it really created the sense that you were flying over the action as it was happening."

Meanwhile, Cameron was planning another kind of shakeup on a stretch of causeway near Seven Mile Bridge in the Florida Keys. Abandoned and all but forgotten, the causeway will be remembered now as the scene of one of the most spectacular chase sequences in recent memory, climaxing with one of the biggest explosions ever, thanks to John Bruno, Digital Domain, Stetson Visual Services and a few miniature megatons of TNT courtesy of Joseph Viskocil, the man who really blew up the Death Star in *Star Wars*.

Cameron had planned the assault on the bridge by Harrier jets from the outset, and in this case, most of the shots of the aircraft were the real thing, although their high-impact weaponry and ensuing devastation was provided by Digital Domain. Sticklers for accuracy, Cameron and Bruno debated whether to handle the Harriers' missile launches and Gatling gun strafings in strictly realistic terms or to go for the drama. In a real situation, the Harriers would be two to five miles away when they launched their missiles, then would pull straight up, roll over backwards and get the hell out of the way. "By the time the missile reached its target," Bruno sighs sadly, "the Harrier would be going in the other direction, and that's not very dramatic. Then there was the problem of the

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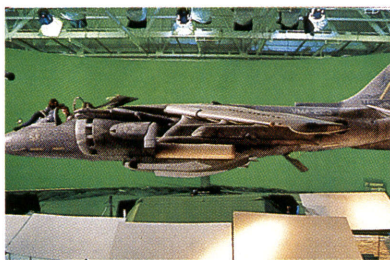
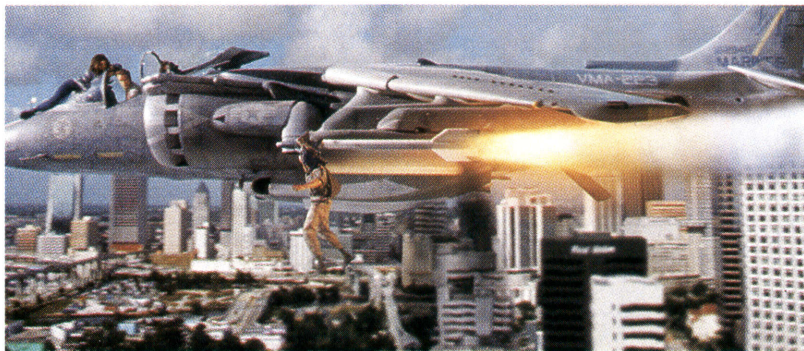


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The finished composite of Aziz being towed along by the Harrier is at top; below are the elements used to create the finished composite.



strafing run. Since a Harrier's Gatling gun shoots 6,000 rounds per minute, we figured in one second there'd be a huge oblong plume of water and you wouldn't see anything — it'd just be over! And it wouldn't miss. But we liked the idea of doing it World War II-style and seeing the trail of bullets strafing the water, leaving huge 30-foot plumes of water in

their wake. So we made a filmic decision to go period rather than contemporary, because contemporary would be over quickly and less dramatic."

The strafing effect was created practically by Tommy Fisher, who set primer cord in the water leading up to the bridge. "The charges were set to fire sequentially every second or so,"

Bruno says. "The truck was supposed to blow up when the strafing reached the bridge, so it had to reach that point to be in sync."

Cameron and Bruno then set out to find the best way to blow up the bridge. "Our initial approach was to blow up a very big 1/3- or 1/4-scale model, which we figured would probably be as expensive as doing it for real," Bruno admits. "But when we first scouted the old causeway, which is an abandoned road that only goes to Pidgeon Key research station, we saw that while it once had a hinge-bridge so boats could come through the channel, that bridge was now gone. When Jim saw that 280-foot gap in the causeway, he thought that we could possibly fill the gap with a new bridge section and really blow it up."

However, the Environmental Protection Agency had other ideas. "They were concerned about blowing stuff up in an environmentally protected area," Bruno says, "so we had to set up the 1/5-scale miniature bridge built by Stetson Visual Services on a sandbar 600 feet offshore at Sugarloaf Key, where the EPA felt we would do little or no damage. The water's only five feet deep for miles there, its surface was as smooth as a lake with no waves, and every day, like clockwork, the tide would rise and fall two feet. And just around the corner, a quarter-mile away, was the terrorist compound that would be used for the movie."

Appropriately, the crew used bodybuilding weights to anchor the section of bridge, which even at 1/5-scale measured 80 feet.

A 150-foot ramp leading to that miniature bridge gave Stetson Visual Services' 1/5-scale terrorist van a running start before it headed across at an impressive 30 miles per hour, setting off the charges that blew up the bridge as it hit tripwires on the roadway. Because of the tremendous cost involved, Bruno



and company only had two chances to get the shot instead of the traditional three takes, so there was a certain tension in the air as the miniature van raced down the bridge. Although every other effects plate for *True Lies* was shot with VistaVision cameras, there weren't enough of them able to reach the high speeds necessary for the bridge sequence, so Mat Beck, the effects director of photography for the bridge shot, deployed four locked-off Super 35mm cameras rolling at between 120 and 144 frames per second. Unfortunately, the truck flew off the back of the bridge early! After they had set up their second, and final, 80-foot bridge model, Cameron asked for two additional panning cameras. This time, everything went as planned — except the truck didn't obliterate itself!

"Through a combination of who knows what," Bruno notes with some exasperation, "it launched straight up in the air, flipped over and landed back on the bridge, then slid off the end of our model. From the angles we had it looked spectacular, but that wasn't the storypoint! Jim had already shot Jamie Lee Curtis being rescued by Arnold in the helicopter, and there was no truck on the other side of the bridge as they flew by! Mat Beck solved the problem by shooting the miniature truck wreckage against greenscreen and compositing that element into the next two wide shots of the bridge to complete the sequence."

Bruno's pride was evident as he recently watched a television review of the film that featured a clip of the make-or-break shot of the full-sized Harrier mockup lifting off the causeway with Arnold in the cockpit. "When I saw that sequence on television," Bruno crows, "I said, 'Yep, that's cool! I don't see the effects anymore — Arnold is flying that jet. I did my job!'"



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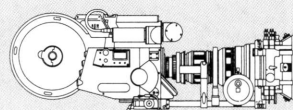
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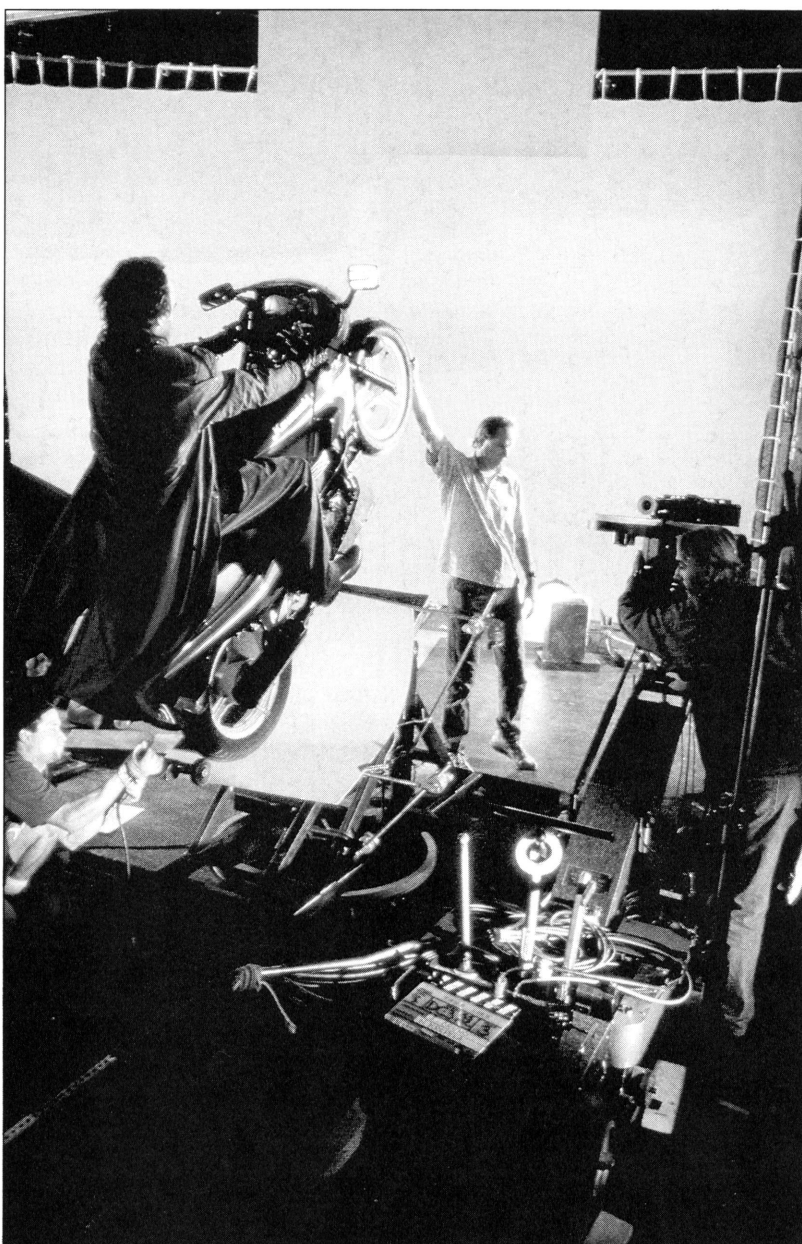
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# Boss Film Revs Up Action Scenes



*On stage at Boss, a mechanical rig captures one element of Aziz's Knievel-like leap from the roof of a 30-story hotel into a swimming pool.*

One of *True Lies*' most effective setpieces tracks a horse-borne Harry Trasker as he chases a motorcyclist through the streets of Washington and into a hotel; not content with the outrageousness of this scenario, director James Cameron wanted the sequence to climax with the cycle jumping from one hotel rooftop to another, literally crashing a poolside party. The challenging capper was created through the

combined efforts of Digital Domain's visual effects supervisor John Bruno and his counterpart at Boss Film, Neil Krepela.

Unfortunately, the geography Cameron required to make the sequence work did not exist in reality; there was no hotel with a rooftop pool anywhere near the Bonaventure Hotel in downtown Los Angeles, where the sequence was actually shot. However, the Hyatt Hotel, a few blocks away,

looked down upon a helipad-equipped rooftop across the street. This gave Bruno the idea to hunt for an appropriate-looking pool, where a platform could be built from which to launch the bike; the scene could then be composited over the helipad to create a rooftop pool that perfectly matched the storyboard.

Bruno and associate producer Pamela Easley searched for the right pool all over Southern California, only to discover exactly what they needed right under their noses, at Burbank Studios. Bruno lost no time preparing the pool for the motorcycle leap: "We measured the distance and the angle from the Hyatt to the helipad, then went 15 feet off the angle and 63 feet up over the pool and built our platform. [Production designer] Peter Lamont built the 'rooftop' set around the pool, then we added a TransLight of Washington on the right and shot stuntman Jimmy Roberts leaping the motorcycle into the pool a couple of times."

While the motorcycle platform was being constructed in Burbank, effects cameraman Mat Beck shot side angles at the Bonaventure hotel and the beginning of the leap at the Hyatt, as well as plates of the Hyatt roof and the helipad on the roof across the street. Realizing that the streets around the Bonaventure didn't look like those in Washington, D.C., Bruno had Boss Film composite downward shots of the street below the Hyatt together with the Bonaventure building to create the correct landscape for the sequence.

In a hangar in Van Nuys, Bruno worked out the gag of Arnold flipping over the top of his horse and hanging off the side of the Bonaventure Hotel. Bruno decided to shoot the scene from a Condor crane above a re-creation of the rooftop with green screen on the floor. At the same time,

Photo by Virgil Mirano, courtesy of BOSS Film



Bruno was planning the preceding shot, in which the motorcyclist shoots through a glass guardrail and flies off the roof. It occurred to him if that shot were photographed from the same overhead position, it might just be possible to pull a matte off the breaking glass of the guard rail. "We intended to shoot the motorcycle from the side, but the high-angle aerial shot was never planned," Bruno says. "When Billy launched his motorcycle, we had a camera filming him from the side and another filming him from above. He went through an opening in the TransLight backing and out the hangar doors onto a landing pad outside. When I did some video compositing, I realized it was a perfect shot, and that we could probably pull a matte of it."

Thanks to Digital Domain's hectic schedule, Bruno's tough compositing assignment — with glass breaking in front of green screen — became Boss Film's headache. "Fortunately, it was supposed to be a night shot, so that helped a lot," says Neil Krepela. "Pulling a good matte was a challenge, but we were able to preserve most of the glass. We had to twist that plate around and cheat the cyclist's angle very slightly from left to right across screen to make sure the cyclist's end position would line up with the landing in the pool plate. We also added camera moves to the shot during the compositing phase, because Jim wanted everything to look as if it was being shot by an operator."

Krepela also supervised a shot from Arnold's point of view as he watches the motorcyclist crash into the pool across the street. "I shot the motorcyclist stuntman on the stage here at Boss against green screen at 12 frames per second," Krepela says. "We had wires attached to his coattails to create the fierce flapping that would happen at 60 miles per hour, but we had to make sure everything was done

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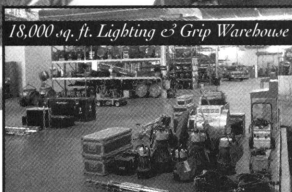
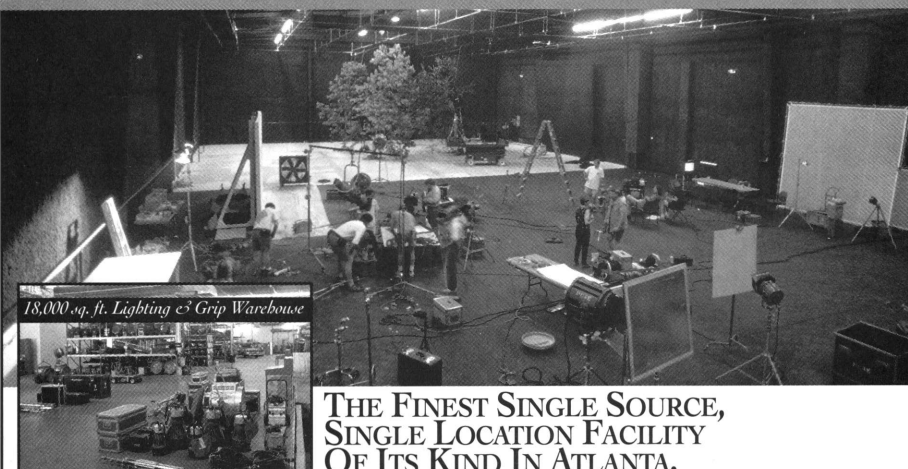
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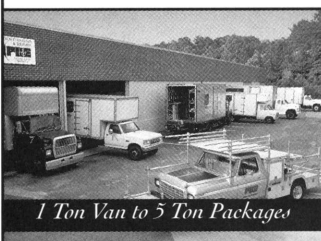
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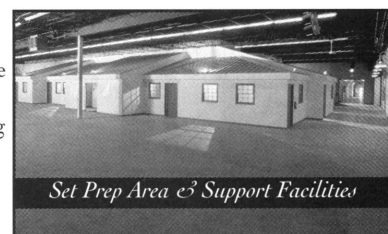
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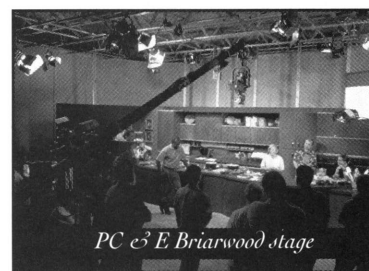
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at half-speed to compensate for the camera rate. The shot was supposed to be from above, but I was actually shooting the cyclist horizontally across the stage. To compensate for that and create the illusion of a higher perspective, we tilted the bike up 20 degrees to equal the angle of tilt-down we wanted on the camera. The cycle itself was also on a tilting rig to simulate the arc of its jump, so we tilted its nose up at the beginning and down at the end to give us an actual perspective shift we couldn't do in the computer. This helped create the feeling that the bike was about to land. We also turned the bike slightly counterclockwise on a turntable to keep its simulated angle of trajectory parallel to camera. Although the camera isn't moving in the final shot, we had to move the camera on stage to create the illusion that the bike was moving. During the length of the shot, we did a 20-foot motion-control pullback so the bike would appear to enter the frame from left to right."

After the stage photography was completed, Boss Film composited the "Bonaventure" rooftop and the pool into the Hyatt hotel background plate. Then Boss continued the motorcycle's arc across the street and reduced it in perspective so it would match the bike hitting the pool in the live-action plate. These days, thanks to digital technology, the inevitable hard cut that would have blended the two bikes, and which has spoiled a lot of effects in the past, has been replaced with the CG equivalent of a dissolve. "We were pretty well lined up, but we wanted to blend seamlessly from one bike to the other so we did a morph between our green-screen bike and their stuntbike over one or two frames," Krepela beams. "That final match-up was done right on the frame as the stunt bike hit the water."

Boss Film also handled a tough shot that placed Arnold into the cockpit of a real Harrier

jet in flight. The Harrier was flown by a Navy pilot and shot with a gyroscopic camera from a jet ranger helicopter that panned with the jet as it headed into Miami. The gyroscopic camera had trouble keeping up with the Harrier, which appeared very blurry and bounced from side to side in the frame, so Krepela's first line of attack was to stabilize the shot. "We totally stabilized the shot by blowing the frame up, but Jim thought it was too much," Krepela explains. "Instead, we reduced the shot and did a half-stabilization on it, so it looked like the cameraman was trying to keep up with the jet. It actually added energy to the shot."

In the original plate, the Harrier flies out of the sun, then turns and flies away from camera towards Miami. This created an interactive lighting problem for Krepela as he shot footage of a double — wearing makeup to enhance his resemblance to Schwarzenegger — against green screen on Boss' stage. "I watched the shot many times and did a number of takes of the double

turning away from or doing double-takes toward our locked-off camera, so Jim would have a lot of variations to choose from," Krepela says. "I also had a moving keylight which started behind Arnold's double and came around during the shot as he 'turned' in the air, so that he'd appear backlit when coming toward us and frontlit as he flew away from us."

The final step was removing the real pilot, who wasn't allowed to fly the Harrier without his helmet and jacket, and replacing him with Arnold's double. "The first job was to paint out the pilot, whose helmet was much bigger than our double's head," Krepela recalls. "Once we picked the take of the double we liked, we tracked it into the plate. We did a bit of skip-framing to make sure the speed of both elements was consistent. The final touch was getting this green-screened character to appear to be behind the jet's glass canopy, which was largely a matter of lighting." — R.M.



## Fantasy II Adds Fuel to the Fire

Of the seven *True Lies* shots handled by Fantasy II, most were of the fix-it, make-it-cut variety that the company's founder, Gene Warren, has excelled at for many years: adding muzzle blasts during the ski-slope chase, knife glints during the fight atop the Harrier, and extra smoke and flying debris over a close-up of Arnold in the jet after its canopy is shot away. But there was one spectacular shot that James Cameron handed to his old associate because he knew it was his specialty: a huge dock explosion that erupts toward the water surrounding the terrorist compound and forces Arnold Schwarzenegger to take a dive.

The original background plate boasted an enormous practical explosion that spewed upwards and arced out, but the blast never came toward camera and there were no flames heading for the water or Arnold. Yet, in the next cut, we were supposed to see Arnold swimming underwater as a huge fireball rose behind him. "The whole lagoon was supposed to be on fire," Warren reminds us, "so for continuity, Jim wanted this shot to show flaming gasoline heading toward the lagoon and becoming an imminent threat to Arnold. Jim turned this shot over to me because he knows I've done a lot of this kind of stuff and



I knew what he wanted: a spray of liquid gasoline that's on fire and travelling 200 feet. We had to make a flaming, broiling, boiling gasoline element that would emanate from the plate explosion, break through some things on the dock right toward camera and threaten Arnold."

Naturally, the tricky effect had to be tested, set up and shot as quickly as possible. Warren opted to shoot a miniaturized version of the explosion, only 26 feet high instead of 200, at close to 300 frames per second against a black background with a wide lens. In order to get the velocity of throw Cameron wanted, Warren created a precise mixture of gasoline and a non-flammable liquid, in this case, water. "If I'd used pure gasoline, it would have atomized into an explosive fireball, which wasn't what Jim wanted," he explains. "We shot the gasoline and water mixture out of several air cannons aimed in different directions, and ignited it as it left the cannons. We shot the mixture almost vertically so we could use gravity to maximize the throw and cover that distance. The trick was to make flames we shot vertically act as if they were travelling horizontally without getting that zero-G feeling, where they don't appear to be affected by gravity. To keep the explosion broiling, we shot off slower cannons first, then had more explosive ones with greater charges of air follow behind to push the flames out from the middle and off to the sides."

Surprisingly, Warren opted to composite the explosion into the scene optically rather than digitally. "In theory, the composite would've been a bit easier digitally," Warren admits, "but with the tight time-frame at the end and the changes Jim wanted, I'm not sure it would've been easier in practice."

Cameron wanted to see the multiple practical explosions in the background plate *through* Warren's miniature eruption of liquid burning gasoline, which

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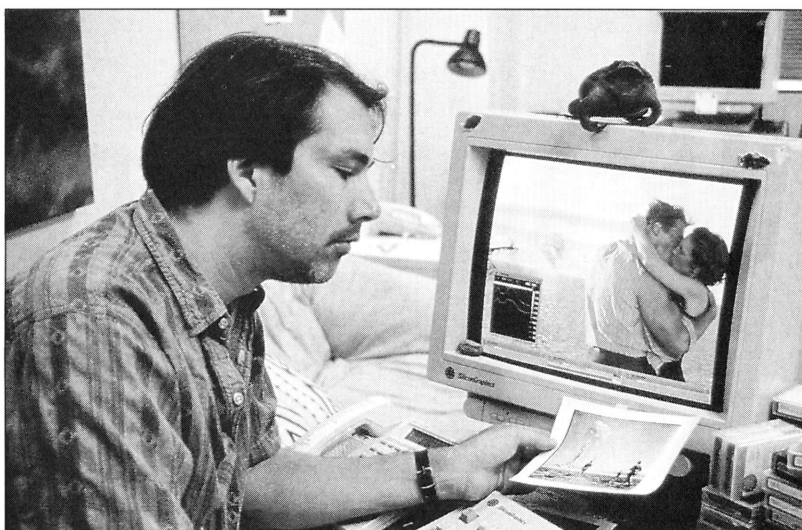
necessitated some unheard-of sleight-of-hand in the optical composite. "It was very complicated," Warren avers. "Almost every frame had to be treated differently. We had an explosion in the background that got brighter, then dimmer, and our stuff had to stay married to it, so we had to adjust the color and shift the density of our matte in each frame. We virtually had no matte for the first eight frames, then we brought a hint of one in for a few frames, dropped it back down, and then let it creep back over 40 frames or so, until it ran to a full-

density matte. Then we wiped all our holdout mattes through the objects on the dock and let the flames wrap around them. Lastly, we added reflections from the flames in the water. When it was all composited, there was flaming stuff shooting off toward the left, arcing down and heading toward the water. The flames never hit the lagoon because Jim thought it was more dramatic to cut to Arnold diving underwater with the explosion erupting behind him, which, of course, was the whole reason for our shot!"

— R.M.



## PDI Adds Key Touches



Photos courtesy of Pacific Data Images

**Left:** PDI's Jamie Dixon compares looks as he searches for the perfect CG nuke blast. **Below:** A digital matte painting places a Rhode Island mansion in the Swiss Alps.

For *True Lies*, Pacific Data Images' (PDI) effects ran the gamut from the Swiss chateau of your dreams to nuclear annihilation.

The chateau is the first of many counter-intelligence hang-outs that agent Harry Tasker must infiltrate. The film's first image, a postcard-perfect landscape of a snow-covered dock with footprints leading to a lake, in front of the chateau and the distant Swiss Alps, was created entirely by PDI. "The dock was a miniature," says PDI Visual Effects Supervisor Jamie Dixon. "The mansion was shot at the Salve Regina University in Rhode



Island, the big mountains in the background were shot by one of our animators on vacation in New Zealand, and the rolling hills alongside the mansion were

from Canada. But when it's all put together, it looks like Switzerland!"

Those elements were composited digitally using a CG equivalent of Photoshop. As for the lake, Dixon had boldly stated that he would create it using CG, without quite knowing how he'd do it. He ended up making a flat reflective element that mirrored and inverted the background: "That looked unnatural until I added waves to the flat surface, which distorted the reflection and looked great."

PDI also engineered Cameron's cynical '90s homage to the classic shot of a couple kissing as fireworks explode behind them; when Arnold Schwarzenegger and Jamie Leigh Curtis smooch, a nuclear blast erupts in the background. That explosion, perhaps the only mushroom cloud in film history to become a throwaway gag, could have been created by treating stock footage of real bombs, but Cameron and Dixon felt audiences were too familiar with those images. Rather than being

limited by the real thing, the filmmakers opted to use CG to get exactly what they wanted. Dixon notes, "We had developed a CG software for rendering fog in *Carlito's Way*, which we also used to create smoke signals in *Lightning Jack* and a tornado for *Natural Born Killers*. So the bomb blast was a natural extension of

those effects combined. We also did a few more cuts in which you see the blast dissipating very casually on the horizon."

— R.M.



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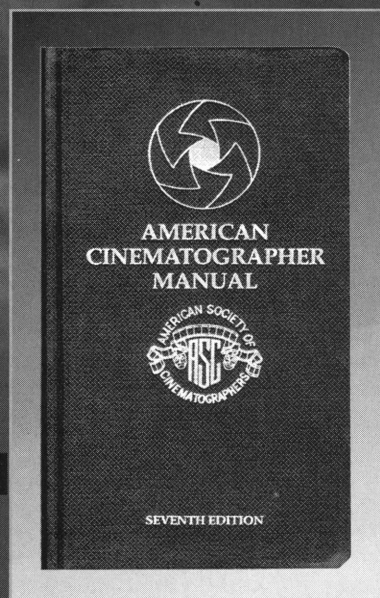
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The Seventh Edition, edited by Dr. Rod Ryan, has been expanded by 185 pages. Completely new chapters have been added on digital effects cinematography, emulsion testing and film formats as well.

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## New Products

compiled by Marji Rhea

### Video Tap

Cinema Products' Vidiflex Viewing System fiberoptic video tap, currently being used on the *Something Wilder* television series, consists of a coherent fiberoptic bundle bonded to a CCD chip that replaces the ground glass used in the optical viewing mechanism of conventional 35mm motion picture cameras. The image obtained by the device is identical to that captured by the film and is of such high resolution that it can be used for critical focusing by a camera operator. The image quality is also more than sufficient for offline editing purposes, thus eliminating the need to telecine transfer dailies of programs shot on film.

For *Something Wilder*, Panavision cameras modified to accommodate the Vidiflex system have been mounted onto television camera pedestals and used in the studio to shoot the show. A single cameraperson operates each unit, executing his or her own camera moves and relying solely on a video viewfinder to critically focus. The Vidiflex image is also being used to create a rough-cut line feed viewed by studio audiences, and it is being fed directly to an offline editing system used in posting the show.

The producers of the show were interested in shooting on film both for enhanced image quality and for the purpose of foreign syndication. PAL and other foreign standard masters derived from film are of much higher quality than those derived from NTSC video, making them more acceptable to overseas markets. The Vidiflex makes film production practical by reducing crew size and lowering postproduction costs.

Cinema Products Corporation developed the Vidiflex System in association with the inventor, Ron Goodman, president of Spacecam Systems. The company is currently working with Panavision to equip additional cameras

with the device and is developing retrofit kits for Arriflex and Moviecam cameras.

For information: Cinema Products Corporation, 3211 South La Cienega Blvd., Los Angeles, CA 90016-3112. (310) 836-7991, (800) 955-5025.

### Fluorescent Tube Colors

The Great American Market's GamTube is a GamColor sleeve that slips over fluorescent tubes to correct or change color emissions. GamTubes are made from deep-dyed polyester to fit snugly over T-12 fluorescent tubes and install in seconds. Each is 100" long, folded and packed flat for easy storage. Eighteen colors are available — seven CineFilter correction colors and eleven decorative GamColor filter colors.

For information: Great American Market, 826 N. Cole Ave., Hollywood, CA 90038, (213) 461-0200.

### Charger/Discharger

Ambico's two new charger/discharger models recharge and refresh batteries for leading-brand camcorders and are compatible with nickel metal hydride and nickel cadmium batteries. Both the V0917 and V0918 models provide microprocessor control and incorporate temperature and amperage monitoring. Both also offer a liquid-crystal display charge indicator. When battery, charger and camcorder are connected for two minutes, the LCD acts as a fuel gauge and informs the user what percentage of a battery's total potential power is available.

The accessories also serve as battery eliminators. To power a compatible camcorder with household current or from an automobile battery, users connect the video camera to the V0917 or V0918 and plug a supplied adapter into a household outlet or a car cigarette lighter. Model V0917 is designed for batteries that fit full-sized camcorders by

Sony, Nikon, Ricoh, Fisher/Sanyo and Sharp. Model V0918 is for VHS-units from Panasonic, JVC, GE, Quasar and Zenith.

For information: Ambico, 46-23 Crane St., Long Island City, NY 11101, (718) 392-6442, (800) 742-3438, FAX (718) 784-1080.

### Fluorescent Lamp

The Fluorescent Company's 4-Lamp Fixture is a flicker-free, high-output fluorescent panel for front- or rear-lit blue- and greenscreen photography as well as soft light. The units feature rugged, lightweight metal design, built-in ballast, and individual lamp switching.

For information: The Fluorescent Company, Inc., 19425-B Soledad Canyon Road, #349, Canyon Country, CA 91351, (805) 251-4356.



### Camcorder Lenses

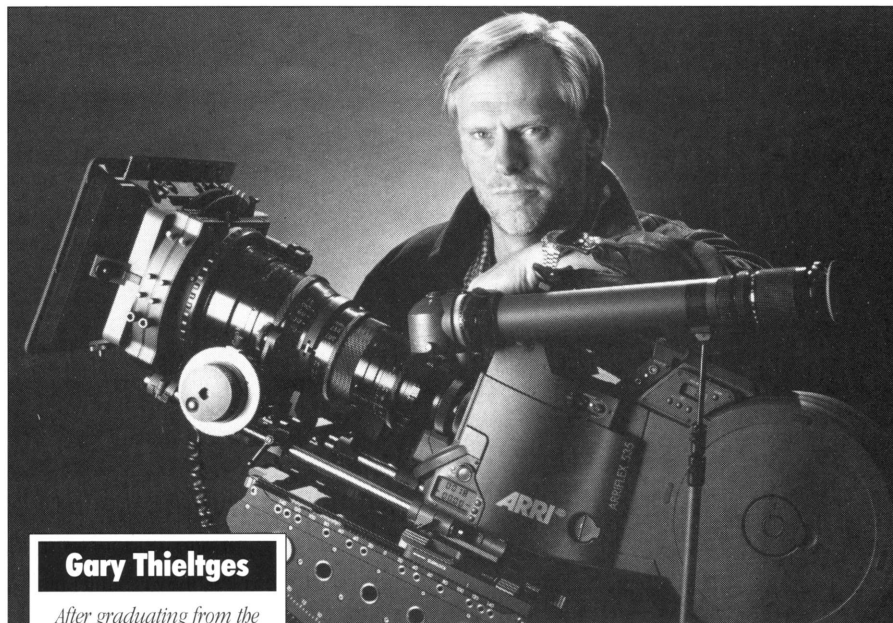
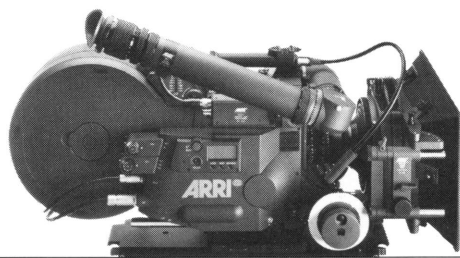
Canon's VL Mount System for interchangeable lenses permits lenses to be quickly released and attached to the camcorder body while still retaining full focus, iris and zoom control with each lens. The system can be used with all portable video formats.

The Canon 10X, CL10-100mm f/1.8-2.8 VL Mount lens uses the Canon Vari-Angle Prism, which provides optical image stabilization as opposed to electronic image stabilization. The prism is composed of two glass elements joined by a flexible plastic material filled with a high-refractive index fluid. It works by adjusting the shape of the prism in re-



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sponse to the slightest camera movement and redirects the incoming light to form a steady image on the CCD. The Vari-Angle Prism system stabilizes the image, so there is no degradation of image quality or loss of field of view. The image stabilization process occurs instantaneously and reduces camera shake to one-tenth.

The 10X Mount Lens is composed of 15 optical elements in 12 groups. It has a minimum focusing distance of 3.9 feet at telephoto and 0.4 inch at the macro setting. The focal length of the CL10-100mm is equivalent to that of a 54-540mm lens on a 35mm SLR camera.

The Canon 15X, CL-8-120mm f/1.4-2.1 VL mount lens is the standard lens supplied with the L2. The lens covers focal lengths from 8 to 120mm. Thirteen of the surfaces are special multi-coated to provide natural tone and high contrast while cutting flare. The lens also features an 8-blade iris for precision exposure control and soft-focus effects. The Canon 8X, CL 8.7-69.6mm f/1.4-1.8 VL Mount Lens can be used in almost any shooting situation.

The Canon 3X, CL 5-15mm f/1.6-2.6 VL Mount lens offers a wider angle of view than conventional wide-angle converters. Canon's CL 250mm f/4 VL Mount Reflex lens is equivalent in focal length to a 1350mm lens on a standard 35mm SLR camera. It has a built-in neutral density filter system. The Canon EOS Adapter VL makes it possible to use the L2 with all Canon EF lenses — from 15mm to 600mm — designed for Canon EOS series 35mm SLR cameras. When used with the L2, the focal length of EF lenses is multiplied 5.4 times.

Canon EF lenses have two motors, one that controls focus and the other aperture. As with VL Mount interchangeable lenses, two electric contact and four serial contact points on the VL Mount permit communication between the video camera and EF lenses. The contact points on the camcorder body interpret information from encoders on the rear of the EF lenses to control the internal iris and focus motors on the lens. The Canon Extender CL 2X can be used to double the focal length of any of the L2 dedicated interchangeable lenses.

The L2, a Hi8 camcorder that uses the VL Mount System for interchangeable lenses and features RC Time

Code, incorporates date scan and search functions and permits editing right from the camera body. The portable unit can be used for a variety of purposes, from broadcast and home use to industrial applications in the high-technology and manufacturing industries.

The Canon L2 includes many of the same features as the Hi-Band L1, with the addition of RC (Rewriteable Consumer) Time Code, data and index code functions, a new Wipe digital effect and a Shuttle Dial on the wireless remote-control unit.

For easier handling, the L2's recorder section is slightly slanted in relation to the camera section, thereby decreasing its overall depth for a better left-right balance. This ergonomic design allows for different types of shooting positions. Dual action grips on the side and rear are beneficial when shooting over long periods of time and at the telephoto end.

Other camcorder functions include a 15X power zoom lens, selectable metering patterns, full manual control, an automatic white balance assessment system and a removable microphone with stereo and zoom modes.

For information: Canon USA, (516) 328-5145.

**Composite Video Module**

Intelligent Resources Integrated Systems has added a Composite/S-Video Output (CSO) Module to its Video Explorer system for broadcast-quality composite video signals without the use of costly external devices. The CSO Module connects directly to the system, enabling it to work directly with standard Composite and S-Video equipment in either PAL or NTSC. This direct connection, without encoders, decoders or transcoders, maintains higher quality and lowers overall system cost.

The CSO Module produces PAL or NTSC output with any image format and pixel clock rate supported by the Video Explorer system. These supported signal formats include D-1 (CCIR601), Betacam SP, MII, YUV, and RGB.

Version 1.5 of the company's Video Navigator adds a number of new features to the desktop editing system, including two new banks of alpha wipes, with 20 wipes in each bank, and additional utility programs for converting Macintosh animation files to PICT files,



renaming animation files for use with the Video Explorer and maintaining the speed of the system. New options include the Video Navigator Command panel with jog/shuttle control, which provides precise VTR control with the ability to mark in/out points and preview edits quickly and easily; a third bank of 20 alpha wipes; a bank of 20 animation wipes (available on floppy disk or CD-ROM); and the Effects Mastering Kit, a software tool that enables system operators to create customized alpha and animation wipes.

The Video Navigator interfaces with and controls professional postproduction equipment, allowing precise A/B roll edits with sophisticated real-time transition effects and frame-accurate control via RS-422 serial protocol. It can import and export CMX industry standard edit-list formats for online auto-assembly of offline EDLs. When used in conjunction with the Video Explorer system, Betacam SP, Digital Betacam and D-1 can be edited without compromising image quality.

For information: Intelligent Resources Integrated Systems, 3030 Salt Creek Lane, Suite 100, Arlington Heights, IL 60005-5000, (708) 670-9388, FAX (708) 670-0585.

#### Telecine

Avid Technology's Media Recorder Telecine, a digitizing station within a telecine bay, captures film dailies direct to disk during film-to-tape transfer. The Media Recorder Telecine automates and speeds the process of moving from telecine to offline editing by eliminating the additional step of digitizing material to hard disk after transferring film to tape. Once the Telecine process is complete, transfer facilities can immediately deliver drives containing Avid Media Composer or Film Composer bins and media files to their clients, allowing editors working on Avid systems to begin editing as soon as the transfer has been completed.

During the telecine transfer process, the Media Recorder Telecine automatically reads, captures and stores to disk all information used to describe the relationship between the actual film negative and the frames that exist on the videotape, including film edge code, videotape time code, audio time code and the film's pulldown indication. In addition,

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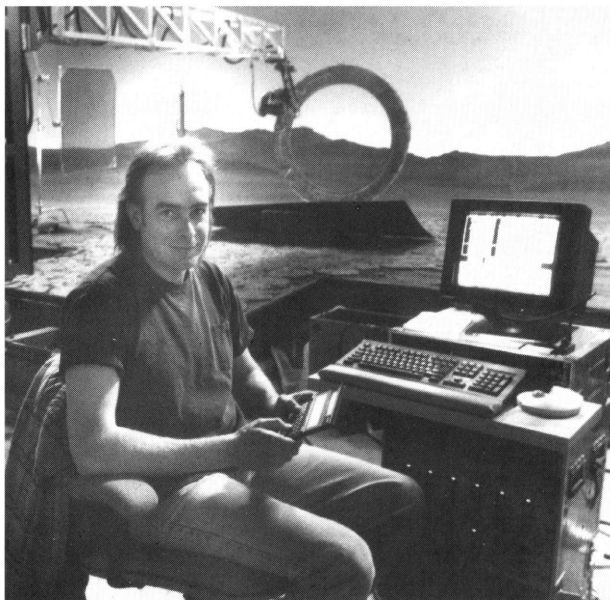


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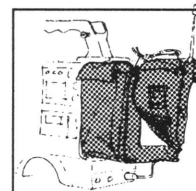
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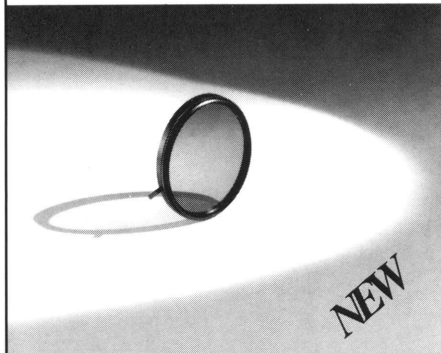


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tion, it automatically builds film bins and organizes information during digitizing — resulting in faster, more accurate and less labor-intensive editing preparation.

During the digitizing process, the Media Recorder Telecine decodes up to three lines of Vertical Interval Time Code (VITC), a new proposal presented to SMPTE last fall by Aaton and Evertz. Telecine also supports LTC and, in addition to time code, the Media Recorder Telecine supports all frame rates, as well as all Avid video resolutions.

Burn-in functionality is available for all six fields of information, and is stored in the system's database for future list generation. All settings can be saved in "user files" to allow quick access to different configurations. The system can operate in either slave mode or master mode. When operating in slave mode, the Telecine edit controller controls the digitizing process. When operating in master mode, the Media Recorder controls the digitizing process.

For information: Avid Technology, Inc., Metropolitan Technology Park, One Park West, Tewksbury, MA 01876, (508) 640-6789, FAX (508) 640-1366.



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mirror. The thousands of individual light beams criss-cross one another, reducing the directness of the light and creating an effect of natural softness. To enhance this softness and to minimize interference from moiré patterns, the mirrors have a range of diameters.

The unit allows interchangeable lampheads and the lights are available in two sizes: the 800 series has switchable wattages up to 4K (tungsten halogen) and interchangeable heads up to 2.5K (MSR). The 600 Series has a tungsten halogen head switchable up to 3K and interchangeable MSR heads up to 1.2K.

For information: OpTex, 20-26 Victoria Road, New Barnet, N. London, EN4 9PF, 44 (0) 81 441 2199, FAX 44 (0) 81 449 3646.



#### Viewfinder

Alan Gordon Enterprises has added to its Mark V Director's Viewfinder new focal length markings for Super 16 and ⅜" video, in addition to the previously existing markings for 16mm, 35mm, anamorphic 35mm film, and ½" and 1" video focal lengths. The ⅜" video and 16mm calibrations shade a window, using color-coded markings for easier reading and more accurate adjusting of the zoom range. Super 16 has been added to the 1" video window. They share the same markings.

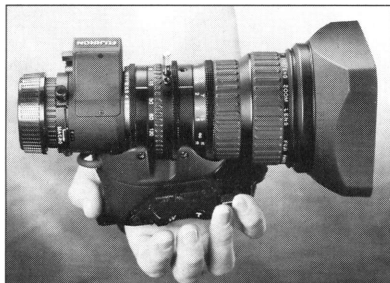
The Mark V is calibrated for aspect ratios of 1.33, 1.66, 16X9, 1.85 and 2.35. It has a 12:1 zoom ratio and an adjustable eyepiece focus ring that allows the user to sharpen an image at any setting. Available accessories include a wide-angle lens attachment and a belt holster.

The company is also offering the Cameleon HD 300 Camera Dolly with hydraulic accumulator system. When fully charged, it will provide four full lifts of up to 200 lbs. each. The boom arm, which has a Mitchell-type leveling



mount, can position the camera lens height between 2" and 67". With a low shot attachment, the lens level may be brought down to 15". Camera risers are available to extend the height. Other accessories available include track wheels, padded seats, multipurpose platforms, utility risers, swivel seat extensions, monitor seat, and a Mitchell to 100mm Ball adapter.

For information: Alan Gordon Enterprises, 1430 Cahuenga Blvd., Hollywood, CA 90028, (213) 466-3561, FAX (213) 871-2193.



#### Handheld Zoom Lens

Fujinon's S15X6.1EVM/ERD is a handheld zoom lens designed for most half-inch format three-chip cameras.

The lens is available in a handheld ENG style and with servo control of zoom and focus for use in remote applications such as a boom. The lens is the latest member of Fujinon's V-Grip series of premium handheld ENG lenses. It incorporates aspheric technology (AT), which provides a dramatic reduction in spherical aberration and better overall optical performance than lenses employing only spherical lens elements.

AT delivers this increased performance while keeping weight at a minimum, an important consideration in an ENG-style lens. The lens is also an inner focus design, which makes the use of filters much easier. Graduated, star, polarizer and other filters need to be set only once, with no adjustment needed after refocusing.

Fujinon's V-Grip adjusts to the operator's hand in five angles — from three degrees to seventeen degrees — and allows focusing from infinity to MOD without removing fingers from the lens barrel. Zoom speed can be adjusted from seven seconds to one second wide to tele with a grip control.

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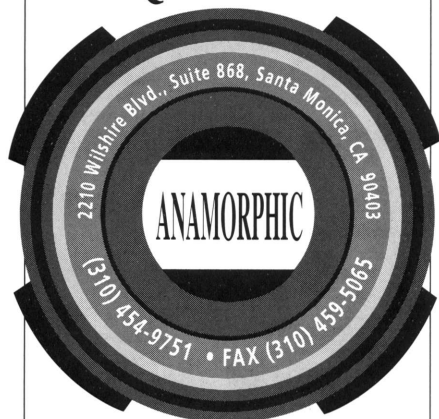
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QFX's Image Warping function distorts a bitmap image, making it appear to be projected onto a 3-D surface. The Queue function creates command lists, or queues, of operations and runs them automatically. Record Mode creates the queue as commands are selected, while the Queue Edit dialog makes it simple to create and edit queues manually and to load and save queue files. The Looping option selects images for processing by wildcard names, number increment, or from a list you create. And you can assign a queue to any of 66 special keys to create shortcuts for dialogs, tools, or other queues.

The Draw Mode allows the user to create a layout of several bitmap objects, then select and manipulate them individually to compose the final image interactively. All masking options are available, as well as variable transparency.

All scaling and rotating parameters are set in one dialog. Digital effects for image processing include realistic glows, true printer's embosses, and natural looking shadows. QFX includes blur, sharpen, explode, smear, oil, relief and edge detection filters, each offering a wide range of controls to create almost endless variations from each basic filter type.

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For flexibility in ENG/EFP or studio use, the WV-F565 offers multicore and coaxial multiplex control systems; it also features Synchro Scan, an electronic shutter with a variable scan shutter speed, that allows the user to shoot video from computer monitors, adjusting out the vertical scan lines that one normally gets in the monitor's video.

Panasonic has also has introduced two desktop video systems, SuperDesk and PowerDesk, with recording, special effects, edit control and graphics built in. SuperDesk includes the Panasonic's AG-DS850 S-VHS editing VCR; two AG-DS840 S-VHS players; the WJ-MX50 digital A/V mixer; Videomedia's OZ-PRO, V-LAN Compatible Desktop Video Editing Controller; and CrystalGraphics' TOPAS Professional 5.1 3-D modeling, rendering and animation package. In the PowerDesk package, the AU-W35H MII editing VCR substitutes for the AG-DS850; the other package elements are identical.

SuperDesk and PowerDesk work with IBM and IBM compatibles. The WJ-MX50 mixer features 287 wipe patterns, digital special effects and two-channel digital frame synchronization. OZ-PRO's V-LAN controllers provide frame-accurate A/B roll editing control over the A/V mixer and VTRs.

For information: Panasonic, One Panasonic Way, Secaucus, NJ 07094.



### Pan/Tilt System

Vinten's VS-200M manual controllers use a proportional rate joystick to control pan and tilt movements with a variable speed range from 1.2 degrees/second up to eight degrees/second. Zoom and focus functions are controlled by paddle switches. A speed control is provided to preset the zoom and focus speeds. Each controller has an integral power supply for 110/220 VAC, 60/50 Hz selectable. The output is 7-24 VDC for pan and tilt and 4-7 VDC for zoom and focus. Tabletop or rack-mount controller are available for either one- or two-camera control.

For information: Vinten TSM, 8115 Clybourn Ave., Sun Valley, CA 91352, (818) 767-0306, FAX (818) 767-0772.

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### Cinematography Videos

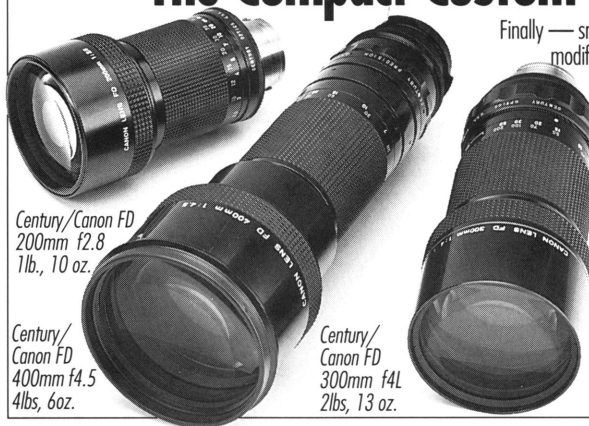
First Light Video has released four new titles in their Kodak Cinematography Class Series, produced by the Australian Film, Television and Radio School: *Shooting for Realism with Allen Daviau and Sacha Vierny*, *Shooting for Drama with Robby Müller and Peter James*, *Shooting for Black & White with Allen Daviau and Denny Lenoir*, and *Shooting for Fantasy with Sacha Vierny and Denny Lenoir*.

For information: First Light Video Publishing, 8536 Venice Blvd., Los Angeles, CA 90034, (800) 777-1576.

### Viewfinder System

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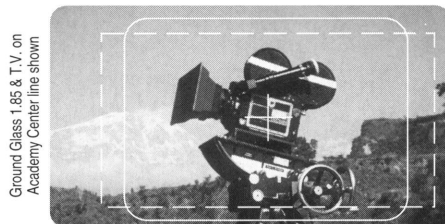
There are both 1000 ft. and 400 ft. displacement type magazines. A new feature is the light valve which allows the operator to direct all the light to the viewing system, or to the video assist, or combo which splits the light between both viewing and video assist.



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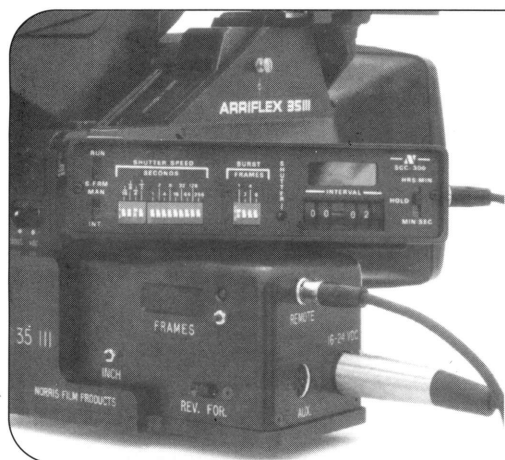
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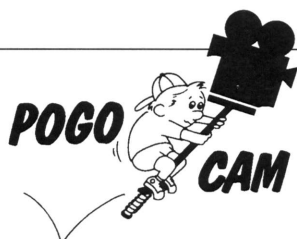
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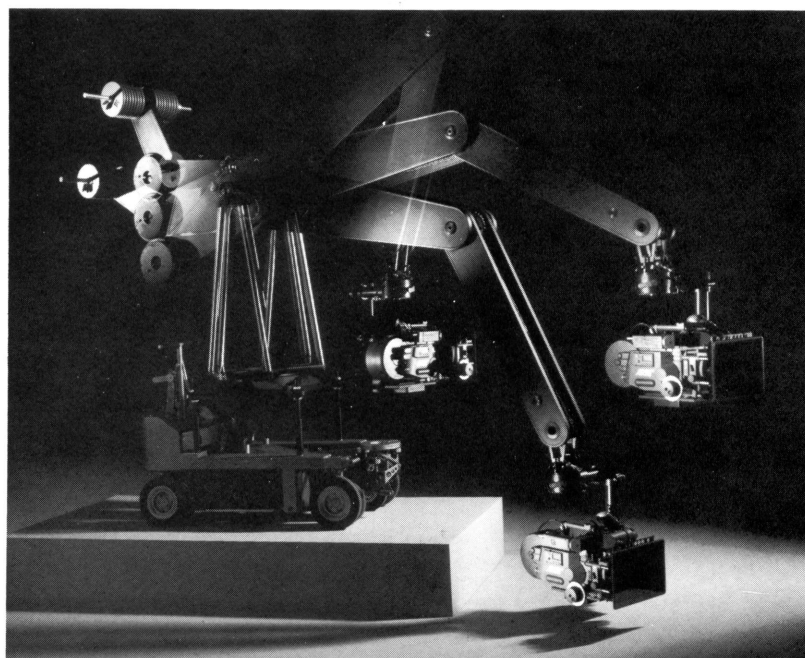


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The recommended hardware platform is a 496/33 mHz PC with 8Mb RAM running Windows 3.1. The HP VidJet Pro print manager hardware is modular and can be configured to grab and print images from composite, Y/C (S-Video), component RGB or serial digital 4:2:2 video sources.

For information: Hewlett-Packard Company, P.O. Box 58059, MS51L-SJ, Santa Clara, CA 95051-8059.

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## New York Fosters Worldly Cinematic Perspective

by Brooke Comer

International cinema is alive and well in New York, thanks to programs like the Film Society of Lincoln Center. Although New York's once-flourishing foreign language theaters diminished with the growth of the home video market, there is still a venue for films from around the world. Richard Pena, program director, describes how the Film Society of Lincoln Center gives visibility to filmmakers from around the world: "On one level we're like MoMA (Museum of Modern Art) and the Film Forum," he notes. "We're dedicated to presenting the film in its breadth and depth, and going back in a historic sense to give that particular cinema as much international profile as possible in that framework."

Pena adds that there are some differences in orientation between the Film Society and other venues for international filmmakers in town. The Film Forum has been renowned for mining older American films, for recognizing genres and signatures of American cinema auteurs. "The Film Society," says Pena, "is known partially for doing a lot of international programming, focusing on countries from Iran, Turkey and different parts of Latin America." MoMA, because of its vast resources and its position as a key archive in the world, "tends to do very serious retrospectives of great historic interest," he says.

This January, the Film Society presents the fourth annual Jewish Film Series, co-sponsored by the Jewish Museum, with films focusing on the Russian and Soviet Jewish experience. February will bring a retrospective of the works of Brazilian director Nelson Pereira Dos Santos, a pioneer of the Brazilian New Wave best known for *Barren Lives* and *How Tasty is My Little Frenchman*. This summer will feature a complete Ingmar Bergman retrospective.

The Film Society was founded in 1969, six years after the New York Film

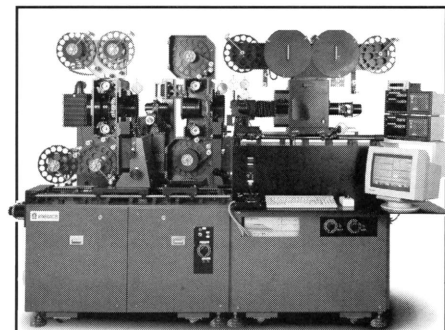
Festival was formed. Pena, who is director of the festival and a chairman on the selection committee, "the gatekeeper in the process," screens all 1300 entrees and helps select the 27 finalists. "The films come from all over the world," he points out, "and in the last decade, we've seen a veritable explosion of talent from Chinese cinema and the People's Republic of Taiwan."

"We're becoming more open and more understanding of the forms and styles of a variety of filmmakers," Pena adds. He also credits the advent of videotape, which may have closed foreign language theaters but makes it easier to ship foreign films. "It's not unlikely for me to see 20 new Iranian films each year, whereas that would have been inconceivable 16 years ago. But it's much more cost-effective to ship tape rather than a 35mm print. As a result, entries to festivals like ours have skyrocketed."

Pena notes that Mexican cinema enjoyed a resurgence during the tenure of the last President, when the Mexican Film Institute "had wonderful people on both the archival and production level." It remains to be seen if the new president will make cultural activity a priority.

Across the Atlantic, the Eastern Bloc is expected to slowly expand its film community. "With the collapse of state film agencies," says Pena, "people are scrambling for production money. As they learn to put together co-productions, I think we'll see more product from that area." He points to several Polish films "that attempted to be slick, American-style thrillers. They did well in Poland, but I don't find that kind of film particularly interesting."

In addition to the New York Film Festival, the Film Society of Lincoln Center collaborates with MoMA on a second festival, called New Directors, New Films, which began in 1972. The



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program is geared toward emerging first-time filmmakers, but the "first film" factor isn't a strict requirement. Pena points out that this year, out of 23 films selected for the festival, 15 are first films and the rest are second films.

The Film Society has also recognized the importance of cinematography in the filmmaking process by hosting retrospectives honoring masters like Gabriel Figueroa. Pena met Figueroa in Europe, "and I became enamored," the program director recalls. "I was happy to be able to bring him that extra attention." Since the Figueroa retrospective, Pena and his team have been looking at the possibilities of saluting more "painters of light."

"There is no question," says Pena, "that cinematographers have become a more visible part of the filmmaking process. Filmmaking has always been collaborative. Despite the importance of the director's vision, directors rely heavily on a series of partners that includes the screenwriter, editor and cinematographer." He currently has his eye on several cinematographers who would all make good candidates for a retrospective, including Robby Müller, Vittorio Storaro, ASC, and Michael Ballhaus, ASC.

Cinematographers are also regarded now as a more valuable part of the film experience, with unique insights on the films they helped create. During a retrospective for Michelangelo Antonioni, cinematographer Carlo Di Palma, who shot *Red Desert*, *Blow Up* and now serves as Woody Allen's main director of photography, spoke about his work with Antonioni.

Pena points out one of his concerns with regard to presenting a large body of work from one cinematographer. "When you're showing a cinematographer's work off to best advantage, you really need pristine prints," he explains. "Fortunately, we were able to get them for our Gabriel Figueroa retrospective." But clean prints from the archives of other legendary American cinematographers aren't always easy to find. But Pena suggests that future contact with the ASC may be just the impetus the Film Society needs to host another retrospective on a director of photography.

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## Books in Review

by George Turner

### Setting the Scene

by Robert S. Sennett

Abrams, 208 pps., cloth \$39.95

It's always a special treat when Harry Abrams, noted as a publisher of art books, produces a tome about movies. One expects and gets the best in layout, paper, printing and binding. *Setting the Scene*, which pays tribute to the great art directors of Hollywood (with asides to some British and European masters) is an ideal book for such a presentation. It combines a well-written and involving text with a wealth of production drawings and photos, 140 in black & white and 25 in color.

Sennett gives us an overview of the history of art direction (today it's called production design), taking us from the early days of painted flats through the realism of *The Birth of a Nation*, the introduction of "settings that talk" in post-World War I Germany, and some of the great individual contributions of such style-setters as William Cameron Menzies, Anton Grot, Hans Dreier, Preston Ames, Cedric Gibbons, Charles D. Hall, Alfred Junge, Vincent Korda, Alexander Golitzen, James Basevi, Robert Boyle, Richard Day, Lyle Wheeler, and many others.

Needless to say, the subject cannot be covered in detail in a single volume. What Sennett has done, as have the authors of the relatively few previous books on the subject, is to whet the appetite for more. It's a subject that lends itself to endless appreciation and study. What a great thing it would be if we could look forward to a string of smaller books devoted to the study of individual artists in the field. An entire book of Menzies' drawings and corresponding photos would be a treasure indeed. Or how about Boyle detailing his work with Alfred Hitchcock, or Hall reflecting upon the Gothic splendors he conceived at old Universal?

Coming back to Earth, though, it's a pleasure to reach into the grab-bag

and come up with a bona-fide jewel like *Setting the Scene*. It's a very welcome addition to the small body of work on an exciting subject.

### Overtones and Undertones

by Royal S. Brown

University of California Press,

396 pps., cloth \$50, paper \$20

Lovers of film music will find much of interest in this deep look into the field by the chair of the film studies program at Queens College. Following a quick look at the origins and history of music in relation to movies, Professor Brown makes closer studies of some of the better cases of film/music interaction, such as *Shadow of a Doubt*, *Laura*, *The Sea Hawk*, *Double Indemnity*, *Pierre le Fou* and *Psycho*. His comments are fresh, insightful and thought-provoking. A minor source of irritation to this reader is the heavy use of some terms that appear to have eluded Noah Webster and his successors: *diegesis* (encompassing "the narrative universe"), *diegetic* music (source music) and *nondiegetic* music.

Of special interest are a series of interviews with eight leading film composers: Miklos Rozsa, David Raksin, Bernard Herrmann, Henry Mancini, Maurice Jarré, Lalo Schiffrin (who is also conductor of the Glendale Symphony), John Barry and Howard Shore. There are more than a few surprises among the salty comments of these brilliant artists, and many insights to be gained from this remarkable book.

### Hollywood Cauldron

by Gregory William Mank

McFarland, 384 pps.,

cloth \$37.50

Greg Mank has centered his attention on the period between 1930 and 1949, and has specialized further in the detailed study of the so-called horror films of that period. One could do worse: unlike the gory horrors that debase the

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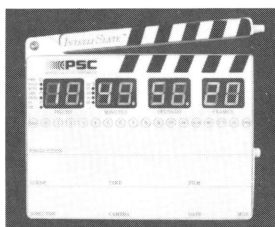
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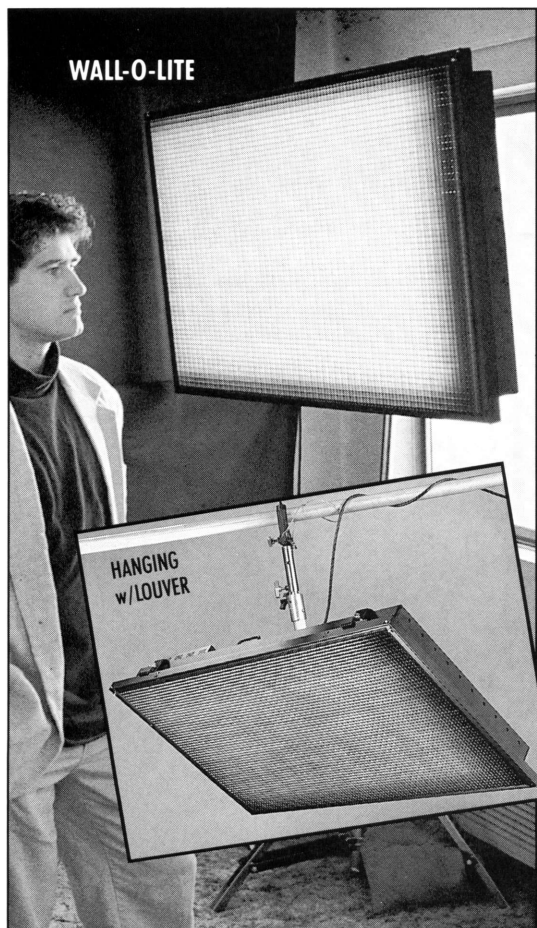
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screen today, many of these terror tales (which were mostly critically despised and even denounced in their day) now seem akin to classical tragedy. It would be possible to make a case for, say, James Whale, John Brahm and Jacques Tourneur as the cinematic equivalents of Shakespeare, Marlowe and Poe.

The thirteen titles given the plush treatment in this instance are well chosen: *Dr. Jekyll and Mr. Hyde* (the John Barrymore, Fredric March and Spencer Tracy versions of 1920, 1931 and 1941), *The Old Dark House* (1932), *The Mask of Fu Manchu* (1932), *Mark of the Vampire* (1935), *Mad Love* (1935), *The Black Room* (1935), *The Walking Dead* (1936), *Cat People* (1936), *The Lodger* (1944), *Bluebeard* (1945), *The Picture of Dorian Gray* (1945), *Hangover Square* (1945) and *Bedlam* (1946). How refreshing it is to find an intelligent evaluation of *The Black Room*, a marvelous historical romance with a great dual-role performance by Boris Karloff, which in 1935 was scorned by the critics because neither "costume pictures" nor horror films were in vogue at the moment. Here, too, is an uncondescending assessment of *Bluebeard*, even though it is a product of the tiny and much-maligned PRC Pictures.

The reader, who presumably shares the author's interest in these curious films, will not necessarily agree with every opinion, such as (in my case) the insistence upon Karloff's *Fu Manchu*, "with his Ann-Margret smile" as being a "gay, lispng dragon of a *Fu Manchu*, looking like Carmen Miranda from hell in his fruit-basket hat and five-inch fingernails." At times the writer seems to go pretty far afield for a look at the oft-probed (forgive the cliché) "underbelly" of Hollywood.

But so what? It's all interesting stuff and there's a wealth of rare information, intricately researched, in these pages. Attention is given to the ambience at the studios when the films were being made. For example, Mank recounts the possible suicide of MGM executive Paul Bern, husband of MGM star Jean Harlow, which set the studio on its ear while *Mask of Fu Manchu* was having production problems. Other plus factors are detailed casts and credits, 69 good and often rare photos, plus a helpful "Hollywood Horror Chronology."



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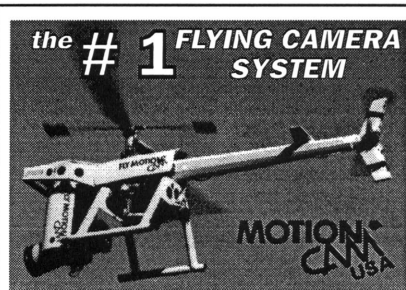


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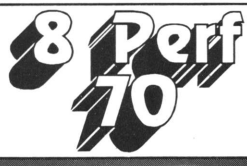
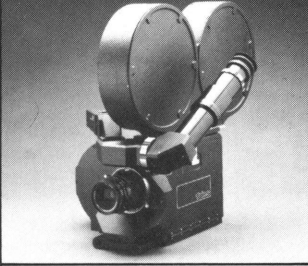
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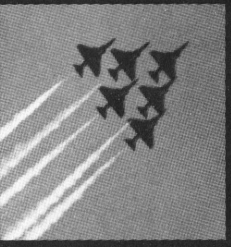
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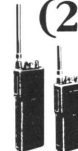
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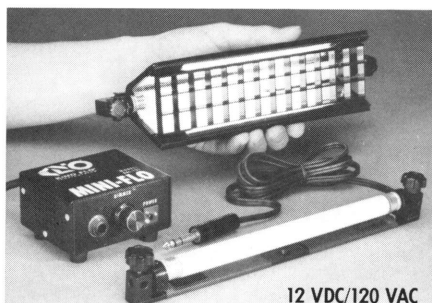
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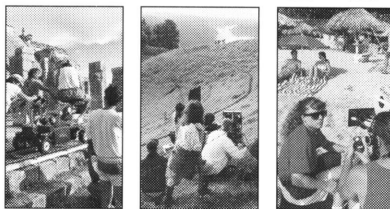
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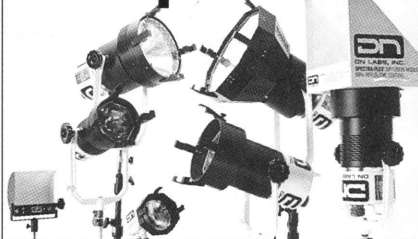


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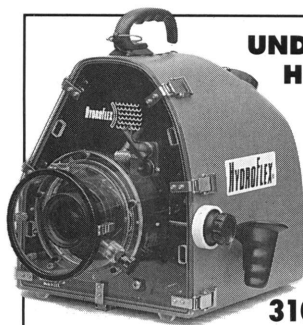
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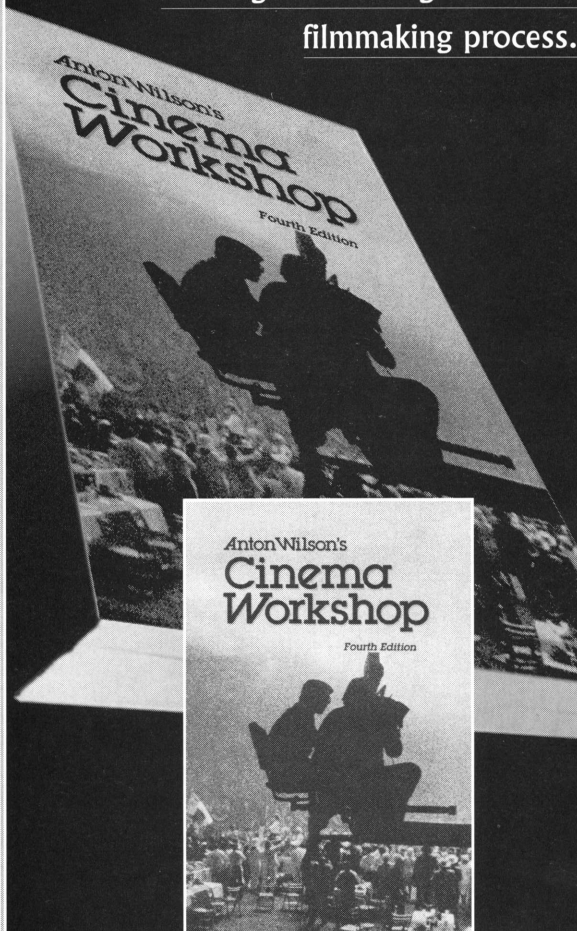
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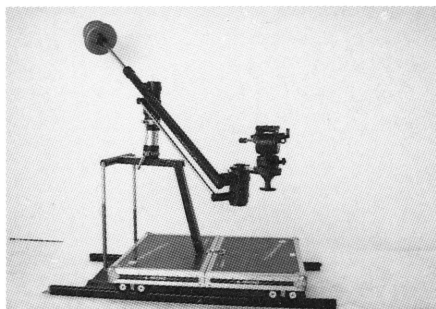
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